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THE
PHYTOLOGIST.

A BOTANICAL JOURNAL.

Ὡς ἐμεγαλύνθη τὰ ἔργα σου, Κύριε!—*πάντα ἐν σοφίᾳ ἐποίησας.*

ΨΑΛΜ. *ργ΄*. 24.

Benedicite universa germinantia in terra Domino; laudate et superexaltate Eum in secula.—*Hymn. iii Pueror*. v. 76.

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CONTENTS.

Page
Botany of the Fond de Leffe, near Dinant, Belgium 353
A Few Days' Botanizing in the North-Eastern Provinces of Spain 356
Verbascum thapsiforme, Schrader 362
Plants found near Slough, Stoke, and Burnham Beeches; by W. T. Dyer 366
Localities of Uncommon Plants within Twelve Miles of Plymouth; by T. R. A. Briggs 368
Notes on the Botany of North Kent 371
Additional Notes on the Botany of Kent 374
Botanical Ramble on Ben Ledi 378
Botanical Notes, Notices, and Queries 380
Communications received 384
Books received for Review 384

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BOTANY OF THE MEUSE.

Botany of the Fond de Leffe, near Dinant, Belgium.

The Fond de Leffe is a small valley, or rather gorge, running up from the Meuse, just below the Dinant, some five or six miles in the direction of Ciney. The Dinantais proudly name it their "petite Suisse;" and though its scenery is scarcely grand enough to warrant the appellation, still there is sufficient picturesque beauty to please and satisfy stay-at-home travellers, who are unable to make invidious comparisons.

The hills rise abruptly on either side, now exhibiting masses of rugged rocks, whose forms and tinting would delight the eye of a painter, now wooded to their summit, while at their base flows a little sparkling rill, gurgling over pebbles, or forming tiny rapids where it encounters large stones. Lower down the valley it is converted into a "water-power," and instead of "wandering at its own sweet will," is dammed up, and forced to turn the wheels of paper-mills and "*polissoirs*," these latter used for smoothing and polishing the marble, of which several different kinds are quarried here, and form a very lucrative branch of commerce. These mills, with the cottages and gardens of the workpeople, give life to what, without them, would be a wild and lonely glen. Our valley has various attractions. Its bold masses of weather- and lichen-stained rocks, alternating with dense woods or fresh green meadows, offer charming subjects for the artist's pencil; the geologist would find matter for study in its singularly contorted stratification, and in the fossiliferous deposits, occasionally laid bare by the quarrymen; nor is it without interest for the archæologist. About two miles up the valley, on the side of a hill, is the so-called "Chemin des Géans," along which the rock is distinctly marked by a groove, apparently worn into it by wheels.

Popular belief ascribes these tracks to the Romans, who are said to have had a military road here. I was even shown the spots where posts were placed at regular intervals, no doubt to support some kind of rail; a necessary precaution, for the road runs along an almost perpendicular slope, a fact that sadly tests my credulity; for I cannot understand how any vehicle could have preserved its centre of gravity on such an inclined plane;

BRITISH MUSEUM

unless indeed the Romans adopted that ingenious mechanical contrivance in such general use in the backwoods of Australia, of having a long and a short pair of wheels, which are changed from side to side as occasion requires.

But I am neither artist, geologist, nor antiquary, therefore it is not the pursuit of any of these objects, that draws me to the Fond de Leffe. For me it has a twofold interest,—first, as being the residence of some dear members of my family, with whom I have spent many a long, pleasant day, during the past summer; and secondly, that while thus "visiting my relations," I had the opportunity of making acquaintance with its rich and hitherto little-known Flora. The following list of a few of its rare plants will be sufficient to prove what an interesting field is here open to the researches of the botanical tourist. Spring-time brought us *Phalangium (Anthericum) Liliago, Lunaria rediviva, Arabis arenosa, Ophrys apifera, Cardamine impatiens, Myrrhis odorata, Globularia vulgaris, etc.* Later in the season the rocks (limestone) were literally covered by the large white umbels of *Seseli (Libanotis) montana,* among which *Lactuca perennis* displayed its pretty purple, star-like flowers, together with *Allium sphærocephalum, Verbascum Lychnitis, Vincetoxicum officinale, Dianthus Carthusianorum, Asperula cynanchica.* Near the water grew *Epilobium roseum, Dipsacus pilosus, Mentha rotundifolia.* I could lengthen my list by adding the names of many other, though less rare, species. But what will give the Fond de Leffe a lasting fame in the annals of Belgian botany, is the discovery we have lately made there of a plant quite new to our Flora. Some weeks ago, my nephew sent me a sprig of an *Artemisia* he had met with in his walks, which, though in too young and imperfect a state for determination, I saw immediately was new to me, and fancied might prove to be *A. campestris,* which has hitherto only been found in one locality in Belgium, namely between Sougnez and Aiwaille, in the province of Liége.

On the 27th of September, as we were spending the day in the valley, my nephew proposed to escort me to the spot where his plant grew. We started, accompanied by his young sister, who shares my taste for botany, all three much excited at the prospect of a rare acquisition for our herbaria. After walking some distance, a turn of the road brought us to the object of our search. There was the *Artemisia,* in immense quantities, covering the entire surface of the limestone rock, and peeping out of every chink, for the space of several hundred yards, to the exclusion of all other vegetation, excepting a little parched-up grass. It was just beginning to flower, but we were able to select a sufficient number of specimens for examination at home. Having consigned these safely to the vasculum, we strolled on up the valley to a hillside, whose scanty herbage was enlivened by the bright-purple blossoms of *Gentiana germanica.* Is this species identical with, or distinct from, our English *G. Amarella?* I collected the latter some years ago on the downs near Dover; but, except for its smaller size and paler colour, cannot perceive any essential distinction between them. Not far from the Gentian, among a heap of loose stones, its favourite habitat apparently, was a goodly patch of *Polypodium calcareum,* the fronds varying from little more than an inch to five or six inches in length and breadth. On consulting our watches we now found that we had barely time to reach home by the dinner hour, and therefore turned to retrace our steps, determined not to loiter, nor to look right or left. We kept our resolution till we came to some little ponds, pools I should rather call them, verdant with Duckweed, and promising a fine harvest of the vegetable "marvels of pond life." This was a temptation too strong to be resisted. My companion, nothing daunted by the uninviting appearance of the decaying mass, tucked up his sleeve, dipped in his hand, and drew forth, first *Chara fœtida* in fructification; next *Potamogeton densus,* and *P. crispus,* in seed; and lastly a hard, bony substance, having neither root nor branches, only an axis, surrounded by three or four toothed, broad leaves. These treasures were all stowed into the vasculum for further examination, and then we hurried back to dinner.

My first work after this meal, was to refer to my books in order to identify the *Artemisia.* A first glance sufficed to convince me that it differed entirely from *A. campestris.* Further study seemed to prove it *A. camphorata,* but this species did not figure in any of the Belgian Floras, so to make assurance doubly sure, I forwarded some specimens to my correspondent, M. Crépin (author of the 'Manuel de la Flore de Belgique'), and in a few days had the satisfaction of receiving from that gentleman a full confirmation of my surmise, that we had been so fortunate as to detect a species previously unknown in Belgium, though it had been found growing abundantly on the rocks near Givel, on the French frontier.

What strange freaks plants play with the theories of botanical geographers! And what a Puck-like spirit of mischief seems to direct them in thus overleaping the lines and boundaries set to their wanderings, by these *savans!* Last year it was the appearance of *Arenaria balearica* in Britain, that gave rise to so much angry discussion; and lo! here is another South-European species, which has skipped from Dauphiné to the valley of the Meuse, between the fiftieth and fifty-first degrees of north latitude. What a theme for learned speculation!

Having settled the question of the *Artemisia*, we had next to ascertain the nature of the hard bodies taken from the pond. They proved to be gems (what are called in German *Knospenkeime*), a secondary mode of propagation of *Potamogeton crispus*. I found them figured in Reichenbach's 'Deutschlands Flora,' (the half-coloured edition) vol. v. f. 30, as *P. crispus*, var. *gemmifer*. They are also figured and described by Treviranus, in a number of the 'Botanische Zeitung' for 1857. Thinking they may be new to other readers of the 'Phytologist,' as they were to me, I have translated and subjoin his note and a copy of his drawing.

H. C.

Houx-sur-Meuse, October 13*th*, 1861.

BOTANY OF SPAIN.

A few Days' Botanizing in the North-Eastern Provinces of Spain, in April and May, 1860.

No. IV. MONSERRAT.

The celebrated mountain Monserrat (which there is no good reason for writing with the French orthography, Montserrat), consists of a long range of many summits, which from their peak-like and serrated appearance, when seen from far off, might be supposed to be of slate. The greater is the surprise of the traveller when he finds on approach, that the whole mountain is composed of pudding-stone, and that the turrets and pinnacles are not pointed, but rounded. The highest summit is stated to be 3800 feet above the sea, from which its distance is not great, and the mountain is a conspicuous object from the coast road, south of Barcelona. From the northern, or rather north-eastern coast, it could also be seen for a considerable space, were not the view intercepted by intervening high ground. From the range behind Barcelona, a fine view of it may be had; but at an angle which does not give it the advantage of its entire length. It is only from the Tarragona road, at a considerable distance from Barcelona, that it can be seen spread out lengthwise in its full dimensions. On a ledge in a receding hollow (or coomb) of the mountain, nearly in the middle of its length, and seemingly about the middle of its height (though really much lower), stands the famous monastery. Like the other monasteries of Spain, once so wealthy and powerful, it is now shorn of its glories; but it is still inhabited by a few monks, though in a number disproportioned to the size and aspect of the edifice, and their hospitality is extended to travellers to the extent of lodging, but not of food; which last is supplied at a tolerable *restaurant* within the precincts of the convent, the utility of which establishment atones for its violation of the *religio loci*. The lodging in the convent itself is gratuitous; but travellers who can afford it, make a donation (also gratuitous) to the funds of the convent. The sleeping chambers, or cells, are neat, sufficiently commodious, beautifully clean, and the views from their windows magnificent. The one which I occupied looked across the hollow of the mountain, upon the splendidly wooded other horn of the crescent, then vocal with numerous nightingales. A copious spring, which issues from the mountain just outside the gateway, had, no doubt, a share in originally deciding the locality of the convent.

The easiest way to Monserrat from Barcelona is by the Mauresa railway, one of the four which diverge from that city. From the railway station to the mountain there is a broad and good carriage-road, by means of which tourists and pilgrims are landed in the very yard of the convent, from that universal symbol and instrument of modern civilization, an omnibus. If this commodious mode of access makes the expedition less romantic, it does not make the place less beautiful. The prosaic vehicle winds its way up the mountain-side through, for the South, a rather dense wood, which, more or less open, according as the woodcutters have been more or less recently in operation, covers a great part of the mountain, both in its higher and lower regions. There is another mode of approach at the southern end of the mountain from the Martorell station of the Valencia railway; but on this side there is neither carriage nor road, but a mule-path only, and travellers must make their way up the mountain and along its side to the convent, either on foot or mounted. Beyond the monastery there is no road higher up; but mountain paths are not deficient. The path to the top, after a stiff climb, leads for a considerable distance along a wooded ravine hemmed in by summits of a pillar-like or sugar-loaf character. The view from the highest of these includes the greater part of Catalonia, northward to the Pyrenees, westward and southward towards the Segre and the Ebro.

I can hardly speak in sufficiently strong terms of the profusion and variety of the flowers, southern and northern, Mediterranean, subalpine, and almost alpine, which covered the mountain-side when I saw it; not always in separate regions, but often mixed together on the same spot. It is fitting to begin with the trees and shrubs, which, still more than flowers, give the general character to a landscape. The *Quercus Ilex* and *coccifera* of the South (the latter not so plentiful as in many other places) are combined with the Holly (*Ilex Aquifolium*) of the North. A denizen of both equally, the Box-tree (*Buxus sempervirens*), here attains a lofty growth. The Juniper of our chalk downs (*Juniperus communis*) is joined with *J. phœnicea*, a Southern and a *garrigue* plant. With *Celtis australis*, the *Micocoulier*, a Mediterranean tree, is found the Mountain Ash (*Pyrus Aucuparia*) of the North. Another flowering rosaceous shrub, *Amelanchier vulgaris*, abounds, as it usually does where there are clefts in calcareous rocks, from the stony hills of Provence to the chalk cliffs above the Seine in Normandy. The Laurustinus (*Viburnum Tinus*), a plant of Italy and the south of France, is side by side with another of the same genus, *V. Lantana*, the Wayfaring-tree of our chalk hills. *Phillyrea media* and *Rhamnus Alaternus*, natives of the *garrigue*, which reach English shrubberies, are accompanied by the Mastic, *Pistacia Lentiscus*, the Terebinth, *P. Terebinthus*, and the universal *Hedera Helix*.

But the flowers of Monserrat are more various and remarkable than the wood products. I have seen few places in the South where the vernal wood-flowers are so abundant. The blue colour is that which predominates. The lovely *Hepatica,* of which the pink is rare compared with the far more beautiful blue variety, glistens from under every thicket. A flower of still deeper blue, our early *Polygala calcarea,* helps perhaps even more to colour the mountain-side. *Viola canina* is in like profusion; as is also, in the barer places, the peculiarly Southern *Aphyllanthes monspeliensis,* a leafless plant (as the name indicates), of the Order *Junceæ,* but which, wherever it grows, studs the ground with ornamental blue flowers, each division of the corolla marked by a midrib of a deeper blue. In the lower regions of the mountain, *Linum narbonense* expands its still finer and larger blue flowers, the most magnificent of their tribe. In the shady woods, our Columbine, *Aquilegia vulgaris,* is not unfrequent. Another of the most abundant flowers is *Globularia vulgaris,* a plant unknown to England (though not requiring a very Southern climate), whose round heads are also blue, though of a less beautiful tint. Another plant of the same genus, *G. Alypum,* is also here met with, a more decidely Southern species, though rarer even in the South than *G. vulgaris.* Of flowers other than blue, one of the most plentiful—it is so indeed wherever it grows in the Pyrenees, the Cevennes, or the burning rocky wastes of the Mediterranean—is the rosy *Saponaria Ocymoides,* with its masses of blossom carpeting the ground. *Anthyllis Vulneraria* is frequent; that is, its red-flowered variety, much the commonest in the South. Of *Cisti* I only saw the purple *C. albidus,* the most beautiful of the common species, and only matched by the very similar *C. villosus,* which supplies its place in Sicily and Greece. But there were numerous *Helianthema,* among which one white (probably *H. apenninum*) and several yellow, which, not feeling quite certain that I have determined them rightly, I forbear to name. The red Valerian, *Centranthus ruber* (which we possess, though probably naturalized, in Greenhithe chalk-pits and other places in Kent), here showed its dark-red masses; a fact rather exceptional, for I have found *C. angustifolius* much more common, both in the French Alps, the Pyrenees and the mountains of the south of France. On a turfy part of the mountain-side, at a considerable elevation, I found *Ranunculus gramineus,* a handsome and rather rare plant allied to *R. Flammula* and *Lingua;* and at a height above that, *Arbutus Uva-ursi* (now *Arctostaphylos*) spread out its luxuriant stems and pitcher-like flowers. The small yellow Narcissus, *N. juncifolius*, formerly confounded with *N. Jonquilla*, grew copiously in the same region; and near the summit of the mountain (on the grassy ledge on which are the ruins of the highest hermitage, that named after St. Jerome), *N. biflorus*, more beautiful than even *N. poeticus*, filled the air with rich fragrance.

But the plant most associated with Monserrat is *Ramondia pyrenaica*, known to those who have botanized at Gavarnie, Esquierry, and other places in the Higher Pyrenees, as one of the most exquisite vegetable productions of that mountain chain. This plant, the only European representative of the Order *Cyrtandraceæ*, was earliest known and described (under the name *Verbascum Myconi*) as a Monserrat plant; these excepted, it has, I believe, no other known habitat. I was fortunate enough to find in a rock, a plant or two already in flower; not on the higher part of the mountain, but on its lower slope, very near the carriage-road. Though I possessed far more beautiful specimens collected on the rocky side of the torrent at Gavarnie, it gave me great pleasure to find it in what, if not its first abode, is at least the first place in which it was scientifically recognized.

The remaining plants which I observed on Monserrat I shall enumerate in the usual order. They are doubtless but a small part of the botanical riches of the mountain, so many plants being, at this early time of the year (the second week of May, in a very backward season), not only not in flower, but not yet recognizable. Of *Ranunculaceæ*, there were *Clematis Vitalba* and two *Thalictra*; one of these had not even begun to flower; another, in the lower region of the mountain, and in very small quantity, had barely begun, and I could not with certainty determine it. Its appearance is not the usual one of a *Thalictrum*, and if a French species, it must be *T. tuberosum*. *Ranunculus gramineus* I have mentioned, to which add *R. bulbosus* and *Helleborus fœtidus*. Of Crucifers, I saw *Arabis sagittata*, *Gerardi*, and *Turrita*; *Cardamine hirsuta*; *Biscutella lævigata* abundantly, the smooth, though hard form, which justifies the name (not *B. ambigua*, the common one of the South, now generally accounted a variety of the former); an *Erysimum*; *Sisymbrium Irio*, *Columnæ*, and *obtusangulum*; *Diplotaxis erucoides*; and, of course, *Alyssum calycinum*, and *Lepidium Draba*. The *Resedæ* were represented by *R. Phyteuma* and *R. fruticulosa*. The *Caryophylleæ*, by *Silene italica*, with other large and small species of that genus, not in flower; and an *Arenaria* unknown to me. Of *Oxalideæ*, I noticed *O. corniculata*; of *Geraniaceæ*, only two Erodiums, *E. ciconium* and *malachoides*. *Leguminosæ* were, as usual, abundant. Besides *Calycotome spinosa* and *Genista Scorpius*, there was a light-green dwarf *Genista*, one of several species which have leaves on the upper part and only thorns on the lower part; the real Spanish broom, *S. hispanica*. The *Cytisi* were *C. argenteus*, and that bush of golden flowers, *C. sessilifolius*. The *Astragali* were *A. monspessulanus*, and a species with pods like large hooks, *A. hamosus*. Besides these, and the *Anthyllis* already mentioned, there were *Dorycnium suffruticosum*, *Lotus corniculatus*, *Psoralea bituminosa*, *Coronilla Emerus*, *Hippocrepis comosa* (unless I mistook *H. glauca* for it), *Arthrolobium scorpioides*, and *Lathyrus setifolius*. Of *Rosaceæ*, besides several Roses not yet in flower, there were *Pyrus communis*, *Potentilla verna*, the wild Strawberry (*Fragaria vesca*), and *Poterium Sanguisorba*. Umbellifers, at this season, I could scarcely expect to find, I only noticed, of course, not in flower, the common Fennel (*Fœniculum vulgare*) and the tall *Bupleurum fruticosum*, with its large, entire, coriaceous leaves. I observed *Momordica Elaterium*, the European representative of the Cucumber tribe; several Honeysuckles, *Lonicera implexa*, *Xylosteum*, and perhaps others; various Sedums, one apparently *altissimum*, and a *Rubia*, probably *peregrina*; none of these however were in flower. Several Galiums were, but I did not stop to determine them. The *Compositæ* which I was able to recognize at this season were, *Pallenis* (formerly *Buphthalmum*) *spinosa*, *Calendula arvensis*, *Urospermum Dalechampii* and *picroides*, (all common plants); *Crepis albida*, a fine mountain plant, which seemed as much at home here as in the Pyrenees; a *Santolina*, and, I believe, a *Phagnalon*; the last two not yet in flower. The Heaths were *Erica arborea*, and another (probably *multiflora*) out of flower. Of *Primulaceæ*, I only noticed *Anagallis arvensis*. Of *Boragineæ*, an early-flowering Order, there were several: *Asperugo procumbens* exhibited its ugly form in luxuriant tangled masses, under the walls of the convent. On the mountain-side the handsome *Lithospermum fruticosum* put forth its blue funnel-shaped flowers. *Echium vulgare* and *Borrago officinalis* make up the list. Of the Order *Solaneæ* I only remarked *Hyoscyamus niger*, a plant very widely diffused, though seldom abundant in any of its localities (an English station, the chalk-hill near Boxley, is an exception). There was a *Verbascum,* resembling *V. Thapsus, Antirrhinum majus,* and an *Orobanche* of a blood-red colour. *Labiatæ,* a numerous Order on the calcareous wastes of the South, were rather frequent, and later in the year there are, no doubt, many more. *Lavandula Spica* and *Phlomis Lychnites* were there, but not yet in flower; *Thymus vulgaris* and *Rosmarinus officinalis* of course; *Salvia clandestina;* a *Teucrium* not in flower, I believe the dark-coloured one which I had found near Zaragoza; *Siderites hirsuta,* one of the goodliest of its stiff genus. Of Plantains, I saw only the common *Plantago Cynops.* Of *Apetalæ,* only *Daphne Laureola,* and four *Euphorbiæ, E. Characias, serrata, amygdaloides,* and another. The *Monocotyledoneæ,* besides those previously mentioned, were *Orchis mascula; Gladiolus byzantinus* (in the hot lower regions); the furze-like *Asparagus* (*A. horridus*), which I first found at Valencia; *Tamus communis; Smilax aspera; Ruscus aculeatus,* a plant which looks more congenial to the South than to the damp thickets which shelter it in our own country; *Convallaria Polygonatum; Asphodelus ramosus* and *fistulosus,* and lastly, though not yet in flower, *Lilium Martagon,* that ornament of mountain woods on the continent of Europe, which though existing in profuse abundance in several similar localities in our south-eastern counties, an idle scrupulosity so long kept out of our British Floras.

Here I am obliged to end what is no doubt a very scanty sample of the treasures by which, a botanist able to visit Monserrat repeatedly and at various seasons, might hope to have his labour rewarded. There only remains to be recorded a two days' excursion in the Spanish Pyrenees, and my memoranda of Spanish botany will have been exhausted.

Verbascum thapsiforme, *Schraderi. History of the Species or Variety?*

Mr. Hudson, in his excellent 'Flora Anglica,' 3rd ed. 1798, is the first English author who has described and localized this plant, about which there are so many different and conflicting opinions, both among the ancients and among the moderns.

The following is the account of this species, if it be a species, given by the judicious author of the 'Flora Anglica:'—

"Verbascum thapsoides, foliis decurrentibus, caule ramosa.—Sp. Pl. 1670.

Verbascum angustifolium ramosum, flore aureo, folio crassiore.—B. Hist. 111, 856.

Verbascum album mas, flore luteo.—Dalech. Hist. 1301.

Verbascum angustius.—Dod. Pempt. 148.

Verbascum foliis viridibus crassioribus.—Hist. Ox. ii. 436.

Anglis, *bastard Mullein.*

Habitat in pratis et pascuis cretaceis et arenosis, in comitatu Cantiano, passim; ♂. vii., viii. (Flowers in July and August.)"

Dr. Withering in his third edition of the 'Botanical Arrangement of the British Plants,' quotes Hudson as his authority for the locality of the plant (vol. ii. p. 249). And further states that it is a "hybrid plant produced in the gardens of Upsal, in the year 1761, from the seeds of *V. Lychnitis,* impregnated by the pollen of *V. Thapsus,* both of which grew in the same bed." The learned author quotes Gerarde, p. 773, fig. 2, who says that "the floures are white, the special mark to know it from the male kinde, being like in every other respect." It may be a question whether this be the present plant under consideration, which has yellow and *not* white flowers. The plant described in Gerarde, on p. 775, fig. 4, agrees better with *V. thapsiforme* of modern authors. Gerarde calls his plant *Verbascum Lychnite minus* (Small Candlewick Mullein), and tells us that "it differs little from the last rehearsed (*V. Lychnitis*), saving that the whole plant is of a better savour, . . . the floure also is much larger, and of a straw or pale-yellow colour."

Withering, who informs his readers that this plant originated in Sweden in 1761, quotes Fuchsius, Dodoens, Gerarde, and J. Bauhin, as the authorities for his *V. thapsoides,* although these authors lived centuries before this species existed, if we are to credit the account of its first appearance. *Aliquando bonus dormitat Homerus:* the most vigilant are now and then caught napping.

Sir J. E. Smith, under *Verbascum Lychnitis,* quotes Hudson, Withering, and the ancient authorities, together with Schrader, Willdenow, Hoffmann, etc., and observes that the "mule variety β he has never seen wild, nor is there any authentic specimen in the Linnæan Herbarium."

The next British authority is Dr. Lindley, who is quoted by Hooker, as his authority for the plant; and the latter observes that it grows "by roadsides in Kent."

Here it may be observed, that by several living authorities on this subject the plant has been ignored; some being doubtful of its very existence, and others sceptical about its being a British or a Kentish plant.

The writer of this notice has much pleasure in notifying to *all* British botanists that there is such a plant, viz. a species, it may be said, universally recognized by Continental botanists, among whom it will be sufficient to mention De Candolle, Fries, Willdenow, who calls it *V. thapsoides;* Meyer, who enters it as *V. Thapsus,* while the *V. Thapsus* of English botanists, and of most Continental authors, is by him called *V. Schraderi;* and this nomenclature is followed by Cosson and Germain, in their excellent 'Flore des Environs de Paris.' Whether the Kentish plant be estimated as a species or as a variety, all Continental authors describe it as a species. My first acquaintance with this plant is of a very recent date. About two or three years ago, Mr. Atwood, of Rouen, sent me seeds of many Norman plants, and among these, some of *Verbascum thapsiforme,* and of *V. phlomoides.* These were distributed among several botanists and cultivators; some succeeded in rearing plants, and some failed.

I was in doubt, till my plants flowered, whether I had *V. thapsiforme,* or only *V. thapsus.* And even after they were in flower I was still dubious, as I had never seen *V. thapsiforme,* if my plant was what is generally so called, or some nearly allied form, *V. phlomoides,* for example.

A Liverpool botanist, who did me the honour of giving me a call, and to whom I had sent seeds of the plant, recognized my plants as the same as his, raised from seeds, and which he had decided to be the plant in question. Soon afterwards I was informed by a very kind friend, to whom I gratefully acknowledge my obligations, for helping me to the names of many continental species, that there was no question about my plants raised from the Norman seeds; that they were what foreign botanists unanimously call a species, and name it *V. thapsiforme.*

My scepticism about the plant was now entirely removed, but there were still doubts hanging to it as an English or a Kentish plant. These were very unexpectedly, very satisfactorily, and much to my gratification, cleared away, during the course of the last month (August, 1861). For this we are indebted to the fortunate discoverer of *Sonchus palustris*, in Plumstead marshes (see 'Phytologist' for 1860, vol. iv. p. 310), to whom the readers of the said magazine should be very grateful; for he has communicated the localities of many rare British plants, from time to time, during the last twenty years; probably more than have been contributed by any other individual botanist during the above-named period.

In giving a precise description of the locality where the *Sonchus* grows, there was no danger to the future existence of the plant; but the same definite description of the spot where the *Verbascum* grows, might be the means of its destruction in the locality where it was seen on the 16th of last August. It is hoped that the readers of this notice will be pleased to accept of the information that *Verbascum thapsiforme* grows not very far from Ashford, in Kent. It is not considered prudent to point out the exact spot, for fear of the eradication of the plant.

Within living memory the plant has been seen plentiful in another part of the county, twenty miles at least from Ashford. The publisher of the 'Phytologist' saw it at Cuxton, probably more than thirty years ago; and he was informed by the late Mr. Anderson, the then Curator of the gardens of the Apothecaries' Company, at Chelsea, that the *V. thapsiforme* grew there (at Cuxton), and that *V. pulverulentum* grew in the same part of the county.

Mr. Pamplin remembers very distinctly that he saw the branched variety, *V. thapsiforme,* but he does not vouch for *V. pulverulentum.* He however asserts that the latter was in the Chelsea Collection, and that Mr. Anderson told him that he (Mr. A.) brought it from Kent.

It is to be wished that the discovery of this also may reward the perseverance of some future discoverer.—*From a Correspondent.*

Note to "Verbascum thapsiforme."

I will here add a few diagnostic marks to help all future discoverers of this rare plant to decide whether they have detected the genuine species, or a variety of *V. Thapsus,* which sometimes varies in the size of the flowers, and has also, in very luxuriant forms, a tendency to produce a branching spike.

There is little obvious difference between the stems and leaves of *V. Thapsus* and those of *V. thapsiforme*. Both the plants are tall, from four to six feet high, with woolly leaves. Only the bracts of the latter-mentioned are more acuminate than they are in the former, which are like the leaves, only more pointed. The points in *V. thapsiforme* are elongated. In this species the sepals (lobes of the calyx) are hairy and pointed. The prominent distinction is in the corolla, which is very much larger than in any form of *V. Thapsus,* and the two lobes of the corolla contiguous to the two long stamens are much larger than the three opposite lobes, and of a different shape, being elongated. In *V. Thapsus,* the lobes are equal. These two characters are constant in all the examples seen. The two more elongated stamens are quite smooth, and the anthers are attached throughout; the latter are deep-orange, and the stamens and hairs are yellowish-green.

In *V. phlomoides,* for this plant has recently established itself near the middle of Clapham Common, the leaves are not woolly on the upper side, but of a very light green colour, and are much smaller than they are either in *V. Thapsus,* or *V. thapsiforme.* The bracts are not acuminate, and the lobes of the corolla are equal. The corolla is not so large as that of *V. thapsiforme,* but larger than in *V. Thapsus.* The longer stamens are also quite smooth, and the anthers are attached, as in *V. thapsiforme.* *V. phlomoides* is but a small plant when compared with its two relatives, being not above half a yard high in the recently observed station. *Note.*—This rare plant, *V. phlomoides,* was first observed on Clapham Common, the 29th August, 1861, and again on September 13th. Here it was spread over about a couple of rods or so, and there might have been then from thirty to forty plants, some of them in flower, but the greater part of them only with radical leaves.

A List of Plants found near Slough, Stoke, and Burnham Beeches, Bucks.

By W. T. Dyer.

Alchemilla arvensis. Stoke.
Anagallis cærulea. Stoke.
Asplenium Trichomanes. Stoke.

Asplenium Adiantum-nigrum. Stoke.
Athyrium Filix-fœmina. Black Park.
Blechnum boreale. Burnham Beeches.
Butomus umbellatus. Thames, Eton.
Campanula Trachelium. Lane near Burnham Beeches.
Carlina vulgaris. Chuck Quarry, Burnham Beeches.
Cheiranthus Cheiri. Stoke walls.
Cuscuta Epithymum. Stoke Common.
Drosera intermedia. Stoke Common.
Drosera rotundifolia. Stoke Common.
Erigeron acris. Walls of Windsor Castle.
Eriophorum angustifolium. Stoke Common.
Euphorbia amygdaloides. Burnham Beeches.
Equisetum limosum. Thames, Eton.
Equisetum palustre. Burnham Beeches.
Equisetum sylvaticum. Burnham Beeches.
Fedia dentata. Stoke.
Fedia olitoria. Stoke.
Geranium pratense. Eton meadows.
Geranium pyrenaicum. Waste ground near Stoke Green.
Hydrocharis Morsus-ranæ. Windsor Park.
Hypericum humifusum. Burnham Beeches.
Inula Conyza. Stoke.
Juncus squarrosus. Stoke Common.
Lactuca muralis. Windsor Castle walls.
Lamium Galeobdolon. Stoke.
Lastrea dilatata. Black Park.
Linaria Cymbalaria. Walls; Stoke.
Linaria minor. Wall opposite South-western railway-station, Windsor.
Linaria repens. Hedge near Sefton Arms, Stoke.
Lycopodium inundatum. Stoke Common.
Lysimachia nemorum. Burnham Beeches.
Lysimachia Nummularia. Burnham Beeches.
Lysimachia vulgaris. Eton meadows.
Molinia cærulea. Stoke Common.
Nuphar lutea. Thames, Eton.
Nymphæa alba. Thames, Eton.
Osmunda regalis. Burnham Beeches.
Polygonum Fagopyrum. Stoke; escaped from cultivation.

Polystichum aculeatum. Stoke.
Polystichum angulare. Stoke.
Pyrethrum inodorum. Stoke.
Rhinanthus Crista-galli. Stoke.
Rhyncospora alba. Burnham Beeches.
Rosa rubiginosa. Chalk quarry, Burnham Beeches.
Ruscus aculeatus. Burnham Beeches.
Sagittaria sagittifolia. Thames, Eton.
Salix repens. Stoke.
Sanicula europæa. Burnham Beeches.
Scolopendrium vulgare. Stoke.
Scutellaria minor. Burnham Beeches.
Sinapis tenuifolia. Windsor Castle Terrace.
Sison amomum. Stoke.
Trifolium incarnatum. Stoke; escaped from cultivation.
Verbascum Thapsus. Stoke.

PLANTS OF PLYMOUTH.

Localities of some Uncommon Plants and of Varieties of Common Species within twelve miles of Plymouth. By T. R. ARCHER BRIGGS.

Ranunculus hirsutus. Fields between Torpoint and St. John's. July, 1860.

Ranunculus parviflorus. Common between Plymouth and Yealmpton. Near Plymstock; Egg Buckland.

Berberis vulgaris (L.). Bank above a small creek from St. John's Lake, between Torpoint and St. John's village. Apparently quite indigenous in two or three spots.

Papaver Argemone (L.). Field between Torpoint and St. John's. July, 1860.

Cardamine pratensis, flore pleno. Abundant in a meadow between Plymouth and Plympton St. Mary's Church. Yealm Bridge, very sparingly.

Erysimum cheiranthoides (L.). Not very common. In tolerable plenty in a field between Buckland Monachorum and Roborough Downs. August 3rd, 1861.

Thlaspi arvense (L.). Cultivated ground near St. Budeaux village. The only locality of this plant I know of in the neighbourhood of Plymouth.

Silene anglica (L.). Shaugh. A single plant, in a cornfield between Torpoint and St. John's. July 23rd, 1861.

Malva rotundifolia (L.). Not common. Near the Devil's Point, Stonehouse; Yealmpton village.

Hypericum dubium (Leers). Common Wood; Fursdon; Egg Buckland.

Hypericum montanum (L.). Abundant. On limestone by the Yealmpton road, within a few miles of Plymouth. Plymstock; Fordbrook.

Acer Pseudo-Platanus. A variety with variegated leaves grows by the tram-road between Crabtree and Cressbrook Farm.

Geranium pyrenaicum. Cutting by the Plymouth and Yealmpton road, near the turning to Elburton village. Abundant; but probably an escape, as *Petroselinum sativum* grows at the same place.

Geranium pusillum. Not common. Pomphleet, and near Plymstock, 1860.

Radiola millegrana (Sm.). Roborough Down.

Euonymus europæa (L.). I have found a variety with dirty-white seed-vessels, growing between Plymouth and Manadon.

Medicago sativa. Between Plymouth and Saltash Ferry.

Trifolium ornithopodioides (L.). Pasture above Whitsand Bay, Cornwall.

Lathyrus latifolius (L.). Near a hedge-bank in a field adjoining the Plymn Bridge road, between Fancy Corner and Plymn Bridge.

Rubus saxatilis (L.). By the tram-road. Common Wood.—This plant is not mentioned in Ravenshaw's Flora.

Rosa rubiginosa (L.). A plant among coppice wood on Colwell estate, Egg Buckland. Near Allowpit, Egg Buckland.

Rosa tomentosa (Sm.). By the tram-road, Fancy.

Pyrus torminalis. In a hedge at Wembury.

Petroselinum segetum. Between Lipson and Laira.

Sison Amomum (L.). Plymouth and Yealmpton road, abundant. Between Crabtree and Plympton St. Mary Church.

Senecio erucifolius (L.). Waste ground and on rubble-heaps from limestone quarries, by the Plymstock and Yealmpton roads. Abundant in some spots. Catdown.

Centaurea Cyanus. Not general. Cultivated ground between Torpoint and St. John's, July, 1861.

Hieracium sylvaticum, var. *maculatum* (Sm.). Banks under trees at Manadon. Probably an escape.

Specularia hybrida (A. DC.). Field between Torpoint and St. John's, 1860. Common Wood, 1861.

Wahlenbergia hederacea (Reich.). Roborough Down; Hoo Meavy; Common Wood.

Erythræa pulchella (Fries). Fields between Torpoint and St. John's; Bovisand.

Linaria spuria. Field near Egg Buckland, 1858. Efford, 1860.

Linaria minor (Desf.). Near the limestone-quarries at Pomphleet and Billacombe. Cornfield between Jump and Tamerton Foliot, July 9th, 1861.

Pedicularis palustris (L.). Roborough Down, 1861. By the Leat, near Jump village, 1860.

Eufragia viscosa (Benth.). Springy place in a field between Torpoint and St. John's, 1860. Not there this season.

Sibthorpia europæa. Common. Near Bickleigh; Fursdon; Egg Buckland; Wembury; near Milton village; near Denham Bridge.

Mentha rotundifolia (L.). Honicknowle. Near Antony, Cornwall.

Mentha piperita. Near St. Budeaux.

Lamium amplexicaule. Gardens near Torpoint, Cornwall. Neighbourhood of St. Budeaux and King's Tamerton.

Lamium Galeobdolon (Crantz). Neighbourhood of Yealmpton; Morwell.

Pinguicula lusitanica (L.). Bog adjoining Fursdon estate, Egg Buckland.

Primula veris (L.). Leigham, Egg Buckland. Pasture near the Knackersknowle and Tamerton road; very sparingly.

Anagallis arvensis (L.). I found a variety with purple flowers, growing with some having flowers of the common colour, in a field below Shallaford Lane, Egg Buckland, on June 13th, 1861.

Littorella lacustris (L.). I found a single plant in a pit on Roborough Down, on September 12th, 1859.

Chenopodium olidum (Curt.). Stoke Damarell. Torpoint, Cornwall, 1860.

Polygonum Bistorta. Goosewell Hill; Egg Buckland, in an orchard, and on a hedge-bank. Weston Mills.

Orchis pyramidalis (L.). Bank, and in a small pasture on the Yealmpton road, about three miles from Plymouth. In great plenty in July, 1858, since which the field has been in cultivation. On rubble-heaps, and in waste ground near Oreston Quarries; sparingly.

Narcissus biflorus (Curt.). In an orchard, and on a hedge-bank at Goosewell, Egg Buckland.

I have not named some other uncommon plants which occur in this neighbourhood, as I am aware their localities have been previously given by Mr. Ravenshaw and others. For a like reason I have also omitted other localities of some of the foregoing.

I have noted the following additional localities, in this neighbourhood, of *Anchusa sempervirens, Barbarea præcox*, and *Geranium rotundifolium*:—

Anchusa sempervirens. Crabtree; near Saltash, on the St. Stephen's Road; Thornbury; Egg Buckland.

Barbarea præcox. On a bank by Tamerton Creek; between Tothill and Laira; by the tram-road, near Marsh House, Egg Buckland.

Geranium rotundifolium. Between Tothill and Laira; abundant. Near Plympton St. Mary Church, by the Plympton road; sparingly. Catdown; Plymstock. Between Torpoint and Antony, Cornwall.

Plymouth, August, 1860.

KENTISH BOTANY.

Notes and Recollections about the Botany of North Kent, between Dartford and Bexley.

Our object in visiting this comparatively little-known tract was, first, to settle some doubts about *Fumaria parviflora*, which this summer (July, 1861) was abundant in a turnip-field near Darenth, and to procure specimens of *Arnoseris pusilla* and of *Senecio viscosus*, which is plentiful at Bexley Heath.

The train by which we travelled left the London Bridge terminus at 9.20 A.M., and conveyed us comfortably to Dartford in less than an hour.

Botanists seldom walk as the crow flies, or, in other words, rarely take the direct line between two points. Our course on this occasion was more than usually devious. To give an exact description of the places of interest which we visited would be impossible, unless we had travelled with the Ordnance map in our pocket and marked the spot where we found a rare plant.

We soon found the *Fumaria,* which is in a sloping field on the left-hand side of the Dartford and Sevenoaks road, about a mile from Dartford. The field was then doubly cropped, with peas and turnips, the former nearly ready for gathering, the latter were only coming forward to take the place of the peas when removed.

While here we observed to the south-west the heights near St. Mary Cray, and decided on going thither the best way we could *improvise;* and adopted the valley of the Darenth for part of our route. We were induced to go this way in hopes of seeing *Epipactis palustris;* but this proud beauty did not condescend to gratify two of the most ardent of her admirers.

Orchids were scarce this season; they were remarkably so in the vale of the Darenth, which surely produces *Orchis latifolia,* though we did not see it.

We saw only *O. maculata.* The river yielded *Ranunculus fluitans* and *Zannichellia palustris;* and the ditches and meadow drains produced *Potamogeton pusillus* with *Lysimachia Nummularia* and other commoner plants. The only thing we observed which by stretching our liberality may be called rather rare, was *Thalictrum flavum,* not far from the viaduct of the London, Chatham, and Dover Railway, which here crosses the valley which lies between the Crays and Farningham.

Before reaching the table land between Sutton and Chiselhurst, we met with a few small plants of *Hypericum montanum.* One of us remembered seeing it more than thirty years ago on the same banky tract, but nearer Farnborough, or, more correctly, on the hill between Eynsford and Farnborough.

Our road or path led us on past a solitary farm, of which the name is forgotten, but it lies between Sutton and a new church building, in a part of the country where there is not a house in sight. From this new church we descended one hill and ascended another in the direction of Bexley, and in a cornfield on the ascent, just one example of *Adonis autumnalis* was seen, and probably a dozen of *Bupleurum rotundifolium.* In a cloverfield on the same acclivity we looked for *Orobanche minor,* which we did not see, but saw plenty of *Ajuga Chamæpitys*. The only noticeable cornfield plants seen in our walk, besides the above, were Poppies. *Papaver hybridum* and *P. somniferum* were very abundant, the latter particularly plentiful.

Dartford Heath, which we crossed, supplied us with *Cuscuta Epithymum;* this was only, at this early period of the season, making its appearance. From the north end of this large tract of elevated open space, a path led us through fields to Bexley village, and another path led us through what may have once been Bexley Heath, but it is a heath no more. The land is now a great strawberry-bed, and between the rows of these plants, which bear the finest of our native fruits, grow the plants of which we were in quest. In one of the fields both the *Arnoseris* and the *Senecio* were quite eradicated, a consequence of careful cultivation. In the last of the fields crossed by the pedestrian coming from Bexley village to Bexley Heath, there is plenty of *Senecio viscosus* as well as *S. sylvaticus;* and in the last field but one there is no lack of *Arnoseris pusilla.*

We had now walked, since leaving Dartford station, a considerable way, and had been on foot nearly seven hours, viz. from about ten A.M. to five P.M., and when at Bexley were only two or three miles from Dartford, where our walk began. Probably we were, even when most remote, not more than four or five miles from the station. Judging by the time spent, our walk probably exceeded fifteen miles.

We had now completed our botanizing but not our walking, for we had from seven to eight miles further to trudge ere we reached home.

The easiest way by which the London botanist can reach Bexley Heath is by the North Kent line; and he may either go to Dartford or leave at Erith. Probably the distance from Dartford is less than it is from Erith; but the walk is neither so pleasant nor is the scenery so good as between the latter place and Bexley Heath. The heights above Erith are as picturesque as any part of North Kent; they equal the best of the scenery between Greenwich and Gravesend.

When he reaches Bexley Heath, he should inquire for the path across the fields to Bexley village; and after leaving the great road from London to Dover, in the first field, now in strawberry culture, he will find the *Senecio viscosus* between the rows, and in the next field, and probably in the third from Bexley Heath, *Arnoseris pusilla* will be seen. If not in the field, it will probably be found about the borders.

Clean culture is detrimental to the botanist; although it be agreeable to see the evidences of care and the promise of success.

One of the remarks we made was that the officinal Poppy, *Papaver somniferum*, was extending its area. In some fields through which we passed it is now as plentiful as it has been for many years near Greenhithe. The scarcity of *Adonis autumnalis*, of which we only saw a single specimen in our long walk of the 12th of July, several miles of which was through cornfields, is attributable to the season. The plant is both vernal and autumnal; it is plentiful in the very beginning and in the end of summer. We were too late for the spring state of this rare species and too early for the autumnal. I have seen it, many years ago, in considerable quantities in the stubble, on fields between Crayford and Dartford.

Apera Spica-venti was plentiful this year (1861), in a cornfield between Dartford Heath and Bexley village.

We were well satisfied with the results of this day's excursion, and hope that it may be the precursor of many more equally agreeable and successful. One of the objects of our ambition is to convey to the readers of the 'Phytologist' a sample of the vegetable riches of this county, which is, with the exception of a few limited spots, a *terra incognita* to the majority of English botanists. A. B.

July 26, 1861.

Additional Remarks on the Botany of Kent.

To the Editor of the 'Phytologist.'

Sir,—Much of the district traversed by your correspondents, and commented upon by them, in the articles on Kentish Botany, in recent numbers of the 'Phytologist,' being familiar to me, I take the liberty of sending you a few remarks on the subject, premising, however, that I have no novelty to record, no distinguished stranger to announce.

The first plant I allude to, *Dipsacus pilosus* (which I have known in the spot you describe, near Canterbury, for at least twenty years), simply for the purpose of mentioning its presence in a hedge bounding some meadows between Brockley and Lewisham. I am not aware whether this is one of the recorded stations for this plant or no; all I can say is, that I have specimens gathered by myself, at the spot in question, some two or three summers since. To the noticeable plants at Richborough may be added the Tansy (*Tanacetum vulgare*), which I gathered there in September, 1856, and which is probably still to be found there. Growing plentifully on Kingsdown beach, intermingled not unfrequently with the Sea Pea, is a form of *Solanum Dulcamara*, which may be worth noticing. The branches are prostrate, spreading on the beach in all directions, so as to form a circular patch; the bark of a dark olive-green or of a rich purple hue; the leaves small, lanceolate, few of them showing any tendency to become lobed at the base; the flowers occasionally destitute of the spot at the base of the lobes of the corolla. The same plant, further on in the undercliff, assumes its ordinary appearance, so that the variety on the beach would seem to be due to the peculiar circumstances under which it grows in the last-named situation. *Brassica oleracea*, so common along the cliffs near St. Margaret's Bay, and the stalks of which, eaten *au naturel*, were esteemed such a luxury in our school-boy days—what will not school-boys eat?—is mentioned, as last year, perhaps from the unusual amount of rain, numerous instances were found wherein the lowermost flowers of the cluster were absent, and their place supplied by a tuft of green leaves—a cabbage in miniature. This was the case all along the chalk range from Kingsdown to Eastwear Bay, and is certainly not so common in all years, at least so far as our observation goes.

At Lydden Spout, one of the most noticeable plants found on a visit, in August, 1860, was the *Hippocrepis comosa*, at that time bearing in profusion its singular pods, which at once suggest the idea that they are formed on the model of a pinnate or of a pinnately divided leaf.

Eastwear Bay! what naturalist, what geologist, what lover of beautiful scenery does not rejoice to find himself there? It matters not whether he roam along the summit of the lofty chalk hills, and gloat over the splendid prospect before him; whether *multo cum labore* he scale the chalky walls themselves, thread the intricacies of the Warren, cautiously tread the steeps of Copt

Point, or, with less risk, skirt the base of the undercliff along the beach, or leave the imprint of his foot on the sands and far-famed fossil bank beyond. Everywhere he will find much to interest and delight him. To the geologist and collector of fossils this district is especially interesting; every tide reveals fresh specimens, the constant falling of the gault brings to light others. To the marine zoologist and seaweed-lover the sands and rock-puddles afford, at low tide, never-ceasing sources of interest. Your correspondents have told us what to expect in the botanical way, and to their record I beg to add a few words.

Papaver somniferum not only grows at the base of the cliff, but also, as your present correspondent knows to his cost, in less accessible situations. Accompanied by the partner of his joys and woes, he was attempting to descend the cliff by a disused and rugged pathway; a small part of the descent had been accomplished, when a sudden squall of wind, rain, and hail—such hail!—attended by thunder and lightning, arrested their progress, and compelled them to remain on a little ledge of rock, overhung by a projecting block of chalk, a station which, under the circumstances, seemed anything but secure, not to say comfortable. However, while waiting here, to allow the storm to abate its fury a little, before retracing our steps, we caught sight of *Papaver somniferum* and *Iris fœtidissima,* the latter in fruit. Specimens in our herbarium attest the fact, and compensate for the thorough soaking, and whitewashing to boot, that we got on that day. *Centaurea Calcitrapa* and a curious variety of *Origanum vulgare* are to be found hereabouts; the latter I think I have seen named as *O. vulgare,* var. *cylindrostachya,* or *prismatostachya,* I do not remember which; at any rate, the inflorescence, in place of being in globular masses, is lengthened out more into the form of a spike; the bracts, moreover, being increased in number, size, and intensity of colour, so that the appearance of the plant differs much from that of the ordinary form.

One of the most remarkable things to be noticed here, is the well-marked difference in the vegetation of the chalk and of the gault clay. Your geological readers who may have visited this charming spot, will know how clearly defined is the boundary between the two formations: the character of the vegetation is hardly less clearly definable. On the one side are the well-known chalk plants, in all their luxuriance and beauty, many of which are noticed by your correspondents; on the other, at a distance of only a few feet, there is the Coltsfoot, the *Equisetum*, the rough tufts of Rushes, and little else beside; the special chalk plants are not to be found beyond the border. Some years since, when pursuing some investigations on the distribution of wild plants in Oxfordshire, I found equally trenchant distinctions between the vegetation of the oolite and that of the clay, and I arrived at the conclusion that the difference of the vegetation on the soils in question depended more upon the degree of moisture than upon the chemical nature of the soil, though of all varieties of soils those having a predominance of lime in them have the most especially-marked Flora. On the other hand, many plants which in this country are confined to chalky or limestone districts, occur on the Continent in widely different spots. *Chlora perfoliata*, one of the plants usually considered especially to belong to the chalk, may be found in Oxfordshire on the clay; and I have once gathered it on the gault of Eastwear Bay, but once only, whereas it is abundant on the chalk not a stone's-throw from the clay.

The presence of *Scolopendrium vulgare* at Eastwear Bay and at Lydden Spout seems to have attracted the notice of your correspondents (whose mask, by the way, hardly conceals their features), as also it did my own. Although familiar with the plant as occurring occasionally on chalk, greensand, and other limestone soils, I never before saw it so close to the sea. In the localities above mentioned, the plant was always seen by the present writer, close by the rills of fresh-water which ooze out from between the chalk and gault, while at Lydden Spout the water pours out *pleno rivo*.

Following the track of your correspondents, I may notice the abundance of that most elegant little plant *Anagallis tenella*, on the oozing ground at the base of the greensand cliffs between Folkestone and Sandgate, where also *Samolus Valerandi* and *Lavatera arborea* may be found—the latter an escape from gardens. At the top of the cliff, by the side of the pathway leading towards Sandgate, may be found the Thrift, *Armeria vulgaris*, in plenty; also *Sedum acre* and a white-flowered variety of *Geranium robertianum*. My search after *Cyperus longus* was as fruitless as that of your correspondents, while Newington Moor, another spot eloquently described by the botanical historian of this district, the Rev. G. E. Smith, is much interfered with, both pictorially and botanically, by the ugly gash cut right through it by the railway. On both accounts, now even, it is still well worthy a visit.

To go a mile or two beyond your correspondents' range, but in the same district, I may add that a recent visit to Lympne (November, 1861) yielded *Smyrnium Olusatrum* and *Lavatera arborea*. At Lympne, the greensand range ends, or rather diverges from the coast line, and the flats of Romney Marsh begin; here moreover the antiquary may find much to interest him in the stalwart remains of the old Roman encampment, and of the mediæval castle and church,—the latter on the brow of the hill, the former nearly at the bottom,—a position due in some degree to the frequent landslips. A rambler with natural-history tastes finds so much generally besides natural history to attract his attention, that I may be excused for adding a word or two on the Roman walls of Lympne, especially as your correspondents have had their say about Richborough. There the walls are mainly of flint with bands of tile, and here and there masses of tufa, brought probably from Italy as ballast: this at least is the suggestion of a practical geologist and naturalist. At Lympne the walls are of greensand, Kentish rag, and—sandwich-wise—layers of thick tile. The condition of the stone, especially of the rag, is seemingly as good as it ever was,—a fact for the House of Parliament Decay Commissioners to ponder over. At both Richborough and Lympne *Helix lapicida* may be found. M. T. M.

NOTES OF A BOTANICAL RAMBLE ON BEN LEDI.

On a beautiful morning, about the middle of July, a few ardent lovers of Flora left the Scottish capital for the purpose of exploring the botanical treasures of Ben Ledi. That noble mountain is about three miles west of Callander, in Perthshire, and rises nearly 3000 feet above the sea-level. It does not seem to be much noticed in botanical works in indicating the localities of Scottish alpine Flora. The party referred to, of which the writer was one, were resolved to see with their eyes what plants were really to be found on its rocky sides and bald grey summit. We ascended the mountain from the banks of Loch Lubnaig, and crossing its summit descended on the village of Kilmahog. In Loch Lubnaig we found plenty of *Subularia aquatica* and *Lobelia Dortmanna;* and saw the *Nymphæa alba* and *Nuphar lutea.* On the banks of the loch the graceful *Galium boreale* was growing in profusion. Here we also gathered *Valeriana officinalis* in fine condition. On the meadows between the loch and the mountain, we collected in considerable abundance fine specimens of *Habenaria bifolia, H. chlorantha, Gymnadenia conopsea, G. albida, Orchis latifolia, O. maculata, Geranium pratense,* and *Polygonum viviparum.* In a bog at the base of the mountain, among *Sphagnum obtusifolium* and *S. squamosum,* we found *Vaccinium Oxycoccus* in fruit, and *Narthecium ossifragum* coming into flower. In the same locality, *Parnassia palustris, Drosera rotundifolia, Geum rivale,* and *Comarum palustre,* were gathered. In a small plantation of Oaks and Birches, we stored our field-books with very large specimens of *Polypodium Phegopteris,* and saw *Geranium sylvaticum* in abundance. From the base of the mountain, all the way to its summit, the beautiful *Alchemilla alpina* met our eyes; and in mossy places, we gathered *Eriophorum angustifolium* and *E. vaginatum.* Like golden fringes, on the sides of all the hills, the *Saxifraga aizoides* appeared, accompanied by tufts of *Oxyria reniformis;* and in moist and springy places we collected lonely specimens of *Saxifraga stellaris* and *Sedum villosum.* Hanging over the moist shady rocks, in straggling tufts, mostly in fruit, but in a few instances in flower, was seen the *Saxifraga oppositifolia.* Under the shade of large blocks of rock, which at some period had been hurled from the summit of the mountain, we found fine fruited specimens of *Hymenophyllum Wilsoni;* and higher up, among the debris of the nearly perpendicular rocks, we collected *Allosorus crispus,* and saw *Polystichum Lonchitis,* but not fully developed. On the northern side, and near the summit, we met with abundance of *Saxifraga cernua, Gnaphalium supinum, Lycopodium alpinum, L. Selago, L. clavatum,* and *L. selaginoides;* and among the moist rocks large patches of *Silene acaulis* still in flower: also *Sedum Rhodiola, Asplenium viride,* and *Cystopteris fragilis.* On the dry shady shelves of the rocks *Polypodium Dryopteris* was plentiful, while high among the cliffs fine plants of *Hieracium prenanthoides* were tempting us to danger. On the bare craggy summit, we found *Rubus Chamæmorus* in fruit. On heathy places, all over the mountain, *Empetrum nigrum, Vaccinium Myrtillus,* and *V. Vitis-idæa,* were plentiful. On the dry grassy slopes, we found plenty of *Festuca ovina, Antennaria dioica,* and *Gentiana campestris.* Of the more common Ferns, we collected during our ramble on the mountain *Lastrea Oreopteris, L. dilatata, Blechnum boreale, Polypodium vulgare, Asplenium Adiantum-nigrum,* and *A. Trichomanes.* We made a large collection of Mosses, of which the following are the most worthy of notice:—*Bartramia fontana, B. pomiformis, B. arcuata, B. halleriana, Bryum nutans, B. cuspidatum, B. capillare, Andreæa alpina, A. Rothii, Dicranum virens, Weissia acuta, Grimmia stricta,* and *Polytrichum alpinum.* Our time did not allow us to explore this famous mountain as we wished to have done, especially its rocky cliffs; and we have no doubt but should we have another opportunity of revisiting it, we will be rewarded by the discovery of several other alpine floral gems.

BOTANICAL NOTES, NOTICES, AND QUERIES.

EPIPACTIS PURPURATA IN MIDDLESEX.

A fair correspondent—but *one* who does not wish her name to be kept secret, like several of our correspondents, both of the softer and rougher sex—has sent me, among other matters, the following account of the unexpected appearance of the above species where it had not been previously seen, or if seen, had not been recorded in any recent publication:—

"I can assure you that this Orchid, whatever be its name, has never been brought here, and certainly is of spontaneous growth. I have resided in this place for thirty-one years, and never saw it till within the last few years anywhere about the grounds, nor in one particular locality till *two* years ago. Of this I am perfectly certain, and am quite willing you should attest the same as a fact on my authority. M. A. W."

Note. The locality of the above is near Enfield.—ED.

LIST OF PLANTS FOUND WITHIN FIVE MILES OF LYTHAM, ON THE BANK OF THE RIBBLE.

In and about a ditch on the left-hand side of the footpath immediately after passing the new dock:—*Scirpus maritimus, Sium angustifolium, Apium graveolens,* all plentiful. Between high-water mark and the cultivated ground:—*Cakile maritima,* occasionally; *Melilotus officinalis,* occasionally; *Rumex maritimus,* scarce; *Geranium sanguineum,* Naze Point, scarce; *Atriplex laciniata,* occasionally; *Œnanthe peucedanifolia,* saltmarshes, abundant; *Silene maritima, Honckenya peploides, Plantago maritima, Aster Tripolium, Statice Armeria, Glaux maritima, Eryngium maritimum, Ononis arvensis, Arenaria marina, Triglochin maritimum, Juncus maritimus, J. compressus, Daucus Carota,* abundant; *Spergula nodosa,* not uncommon; *Samolus Valerandi,* occasionally; *Trifolium fragiferum,* frequent; *Erythræa Centaurium,* frequent; *Inula dysenterica,* occasionally; *Pimpinella Saxifraga,* in one spot plentiful—this is more uncommon than *P. magna,* in this neighbourhood; *Salsola Kali,* not uncommon; *Anagallis arvensis,* frequent. In the fields about Naze Point, there is an abundance of *Genista tinctoria.* In a hedge on the left-hand side of the road leading from the riverside to Freckleton, I saw for the first time in my life, a large quantity of *Convolvulus sepium,* of which the blossoms were a beautiful rose-colour, or pink. By the same road I discovered one very fine plant of *Chlora perfoliata,* which I left undisturbed. Its seed-vessels were mostly formed, so that the plant will probably increase in the situation referred to.

C. J. ASHFIELD.

DISCOVERY OF RUBUS LACINIATUS, WILLD., NEAR PLYMOUTH.

Since I last wrote I have again visited the locality of the above-named plant, which is situated near the village of Knackersknowle, a little beyond the third milestone from Plymouth, on the Plymouth and Tavistock road. The habitat is a hedge-bank, the bottom of which is now several feet above the level of the highway, as the hill has been "cut down." This is the only place where I have ever seen it, but I am glad to say there are several plants here, and that it appears to be on the increase, as some of them have rooting shoots several feet long; it now extends for about eight yards, and would furnish many dozens of specimens. I could send you more, (such as the one now forwarded,) if of any use to you.

T. R. A. BRIGGS.

Torrington Place, Plymouth, Oct. 29, 1861.

[Several years ago I received a specimen of the above species from an unknown correspondent, with a request to be told its name. I have further to state that there is a British-grown specimen in Sir W. J. Hooker's herbarium, with a note that it had been sent to him from Wales. It is hereby requested that the correspondent who sent a specimen to the Editor of the 'Phytologist,' will be so kind as to inform him where and under what circumstances the above-specified example was found.—ED.]

SEA-GRASS PAPER.

"A specimen has been laid before us of paper made by Mr. Hartnell, of the Isle of Wight, from common Sea Wrack. The specimen is from a first trial made by Mr. Hartnell, who is no paper-maker; nevertheless, we have no hesitation in saying that, though resembling straw paper in colour and texture, it is far superior to the best straw paper which the writer of this notice has ever been able to obtain for writing purposes. Into the question of relative cost and ultimate price we are not prepared to enter; but we believe that *Zostera marina,* or Sea Wrack, is a very abundant, and hence, probably, a cheap material. It is said particularly to abound on the coasts of the Isle of Wight. The paper made from it is, as we have said, like straw paper, and hence not very white in colour, and more like India paper in that respect; but perhaps great improvements in the bleaching may yet be effected in the manufacture of such paper."—*Builder*.

Mr. Hartnell's paper, made of the new material, *Grass Wrack*, may be superior to the common straw paper now so extensively used; but unless the fibrous matter be in great plenty as well as of excellent quality, it will scarcely answer the purpose.

We fear the economical element is absent; for the natural supply would be soon spent. Would any material, to be used exclusively in the paper manufacture, pay the expense of cultivation and yield a fair profit to the cultivator?

TILLÆA MUSCOSA.

In 'Phytologist,' vol. v. p. 256, *Tillæa muscosa* is recorded as being recently discovered near Plymouth, in Devonshire. It is a Dorsetshire plant, according to the late Dr. Bell Salter's list of plants growing wild in that county. (Where is this list to be seen or had?) In 'Cybele,' vol. i. p. 395, there is the following statement about this rare species:—"Through cultivation as a botanical curiosity, it has become naturalized in places near London;" (what places?) "but I know not of any truly native habitat in the province of Thames?" Does any reader of this note, know any habitat in said district, either native or naturalized?

DIPLOTAXIS MURALIS.

Another county, at least, should be added to the county census of this plant, on the authority of Ravenshaw's 'Flora of Devonshire,' and also on that of a list of early-flowering plants published in the 'Phytologist' for August, 1861, p. 254.

SCROPHULARIA VERNALIS.

Some grave doubts have been communicated in reference to the genuineness of the Plymouth locality for *S. vernalis;* and we beg to ask our readers to supply us with stations where it is apparently a true native. The Mitcham station, now, it is to be feared, no more, is or was not one without exception.

Probably the Scottish localities recently published are genuine. We have seen *Anchusa sempervirens* truly wild in Scotland; but we have not yet seen it in England, in any place where it could be regarded as other than only spontaneous or naturalized. Is *Scrophularia vernalis* to be placed in the same category in England? We have seen *Lamium maculatum* thoroughly naturalized. Is this species to be added to this class of unacknowledged, or but partially acknowledged, naturalized plants?

"NATURALIZED ALIENS."

Accustomed as I have been for some years past, to botanize in the wilds of Derbyshire, I often meet with plants said to be *aliens*, which I am persuaded would not be thought so if the writers saw them growing here, some on rocks all but inaccessible even to a daring climber like myself, and others in the most dreary situations, far from the haunts of men, in the plains or dells lower down. These remarks were elicited by the perusal of your October number, in which *Geranium pyrenaicum* is branded with the name of *alien*. (See vol. v. p. 293.) I found this plant in great plenty, together with *Pimpinella magna*, on the 21st of last month, in the neighbourhood of Baslow, and in as wild a locality as the author of the 'Cybele' could wish. *Hutchinsia petræa*, too, is found at the foot of the limestone rocks in some places, (as well as under walls,) far away from human dwellings, in great abundance. *Achillea decolorans* is not, as has been supposed, confined to the neighbourhood of Matlock, for I found it, on the 10th of October, a great distance from that place. As I have not yet seen in your valuable periodical a list of the plants that occur in my beat, I may, at some future time, supply you with such a notice.

Sheffield. W. ASHLEY.

[We hope our correspondent will speedily perform his promise.—ED.]

NOTICE TO MICROSCOPICAL OBSERVERS, ETC.

We have the pleasure of announcing to students of the minute objects of creation, whether vegetable or animal, that Mr. W. Winter, now of Aldeby, near Beccles, proposes during the ensuing year to devote his time and study to the microscopical productions of the undrained Norfolk Fens, a locality unsurpassed for the multiplicity and variety of its productions.

Mr. Winter, who is celebrated as the discoverer of several species of insects, either new to science or previously undiscovered in Britain, hereby offers his services to all interested in these investigations, as a collector of *Algæ*, *Characeæ*, *Infusoria*, *Insecta*, etc. He proposes to supply mounted specimens of the whole of his discoveries, in *sets;* the price to subscribers will be one guinea each. For this subscription, each member will be entitled to specimens of all the objects collected, which will be mounted in any way most convenient to the recipients, and will be ready for delivery next November.

As Mr. Winter's whole time will be spent in exploring these fens and in examining and mounting their interesting productions, he wishes that all those who mean to promote his undertaking will send their names, addresses, and subscription, as early as convenient, for it is intended to issue only a limited number of sets.

On the 3rd of December, a list will be sent to each subscriber and applicant, and the specimens will be issued on the 10th of November, 1862.

EXCHANGE OF SPECIMENS.

Having good duplicate specimens of several of the rarer Mosses (in fruit), I shall be glad to exchange for any of the following:—*Sphagnum molluscum*, *S. rubellum*, *S. contortum* and varieties, *Tortula latifolia*, *T. Muelleri*, *Orthotrichum pumilum*, *O. pallens*, *O. fastigiatum*, *O. rupestre*, *O. speciosum*, *O. Lyellii*, *O. Ludwigii*, *O. Drummondii*, *Timmia austriaca*, *Bryum demissum*, *Funaria hibernica*, *F. Muehlenbergii*, *Splachnum sphæricum*, *Tayloria serrata*, *Œdipodium griffithianum*, *Leucodon sciuroides*, *L. Lagurus*, *Hypnum arcticum*, *H. Oakesii*, *H. Kneiffii*, *H. hamulosum*, *H. ochraceum*, *H. demissum*, *H. micans*, *H. incurvatum*, *H. Muhlenbeckii*, *H. silesiacum*, *H. sylvaticum*, etc., in fruit. A list of duplicates, and other desiderata, will be sent on application. T. W. B. INGLE.

4, Commercial Street, Huddersfield.

KESTON HEATH PLANTS.

On the 16th of this present July I visited the bog on Keston Heath, from which a copious list of plants, collected last September, appeared (from another hand) in the 'Phytologist.' Owing to the earlier time of year, I found several plants which were not included in the list. These were *Carduus pratensis*, *Eleocharis multicaulis*, *Carex stellulata*, *C. panicea*, and another which, looking to the straightness of the beak, would seem to be *C. Œderi*, but which, by the great distance between the lowest fertile spike and the others, answers better to the description usually given of *C. flava*. Prolonging my walk across Hayes Common, I found, at the angle next the camp, a considerable quantity of *Corydalis claviculata*. Descending the hill through the fine grove of old Oaks, and taking the track nearest to the foot of the Hayes Common ridge, in the direction of Keston church, I found several interesting plants. A large cultivated field was dotted over in almost its whole extent with great tufts of *Bromus* (or *Serrafalcus*) *arvensis*, a plant recognized as British in Sir J. E. Smith's 'English Flora,' but relegated by Mr. Babington to the class of plants "not even naturalized." If not yet naturalized where I saw it, this grass, I think, can scarcely fail of becoming so. Further on, at the commencement of the chalk, I crossed several cornfields in which *Papaver somniferum* is as abundant as *P. Rhœas*. In two of these grows, in tolerable abundance, *Camelina fœtida* (as our form of *C. sativa* is now called) in great size and perfection. The same fields produced *Specularia hybrida*, and *Valerianella Auricula*. Is not *V. Auricula*, with the exception of *V. olitoria*, our only common species? Can any of your correspondents point out where the real *V. dentata* is to be found? I sought for the meadow in which, a few summers ago, I had seen three fine plants of *Isatis tinctoria*, but I was unable to find it. In the place where I believed it to be, a fine crop of wheat is now waving.

Communications have been received from

John Sim; C. J. Ashfield; T. Stansfield; W. L. Notcutt; Dr. Windsor; James Backhouse, jun.; W. Winter; W. Pamplin; T. W. B. Ingle; T. R. A. Briggs; W. P.; F. Y. Brocas; William J. H. Ferguson; W. Ashley; M. T. Masters.

BOOKS RECEIVED FOR REVIEW.

A Manual of British and Foreign Plants.
The Canadian Naturalist and Geologist, October, 1861.
Index Filicum, Parts 14 *and* 15.
Vorgefasste Botanische Meinungen, von Dr. J. Roeper.

3 AP 62

INDEX.

Abbotsbury, Dorset, 127.
Abbot's Cliff, 71.
Accrington, 163.
Acer campestre, 103.
Acer Pseudo-Platanus, 369.
Acinos vulgaris, 73.
Aconitum Napellus, 144.
Acorus Calamus, 145, 346.
Actæa spicata, 10, 346.
Actinocarpus Damasonium, 252.
Adonis autumnalis, 327.
Adoxa moschatellina, 41, 100, 254, 271.
Agraphis nutans, 34, 254, 270, 271.
Agrostis setacea, 251.
Aira præcox, 98.
Ajuga Chamæpitys, 145, 373.
Alchemilla vulgaris, 100.
Aldeby, 292, 293, 294, 296.
Alisma ranunculoides, 201, 207, 324, 331.
Alliaria officinalis, 254.
Allium oleraceum, 80, 99.
Allium Schœnoprasum, 80, 81, 145.
Allium ursinum, 34, 254.
Allium vineale, 109, 143, 201.
Alnus glutinosa, 188.
Alnwick, 81, 97, 162.
Althæa officinalis, 145, 294.
Alyssum calycinum, 236, 360.
Amaranthus Blitum, 145.
Anagallis cærulea, 366.
Anagallis tenella, 296.
Anchusa officinalis, 143.
Anchusa sempervirens, 11, 158, 254.
Andover, 165.
Anemone nemorosa, 45, 270, 271.
Anemone Pulsatilla, 123, 141.
Anemone ranunculoides, 287, 289.
Anthemis arvensis, 40.
Anthina flammea, 265.
Anthoxanthum odoratum, 33.
Antirrhinum majus, 128, 289.
Antirrhinum Orontium, 127.
Apargia hispida, 200.
Apples, a new use for, 351.
Aquilegia vulgaris, 236, 290, 344, 359.
Arabis hirsuta, 43, 99, 158, 196, 254, 260.
Arabis Thaliana, 197, 199.
Arctic plants, 256.
Arctium minus, 200.
Arenaria balearica, 32, 46, 49, 55, 58, 59, 127. *See* Retrospective Notice of, Index, *infra*, p. 392.
Arenaria rubella, 304.
Arenaria verna, 80.
Arnoseris pusilla, 371, 373, 374.
Arrhenatherum avenaceum, 33.
Artemisia Absinthium, 215.
Artemisia campestris, 295, 354, 355.
Artemisia marina, 139.
Arum maculatum, 106, 145, 196.
Arundo Epigejos, 81.
Arundo Phragmites, 202.
Ash, 102, 182, 215.
Ashfield, E. G., 164.
Ashford, 344, 352, 365.
Ashton-under-Lyne, 165.
Asparagus officinalis, 157.
Aspden, John, 163.
Aspergillus glaucus, 267.
Asperugo procumbens, 81.
Asperula cynanchica, 40.
Asphodelus ramosus, 301.
Asplenium anceps, 81.
Asplenium maritimum, 67.
Asplenium septentrionale, 197.
Asplenium Trichomanes, 79, 100, 270, 271.
Astragalus Glycyphyllus, 80, 99, 294.
Astragalus hypoglottis, 99, 270, 271.
Astragalus sesameus, 233.
Athyrium Filix-fœmina, v. Grantiæ, 70.
Athyrium Filix-fœmina, v. Vernoniæ, 69.
Athyrium latifolium, 81.
Atriplex Babingtonii, 343.
Atropa Belladonna, 68, 118, 146, 213, 260.
Atwood, Mr., 364.
Avena pratensis, 99.
Avicenna, 129.
Avignon, 328, 329.

Aylesbury, 119.
Ayton, near York, 237.

Bagshot Heath, 61.
Bala, 61.
Bale, John, 131.
Bangor, 308.
Barbarea præcox, 371.
Barber, Ben., 163.
Barlow, James, 164.
Barnes Common, 291.
Barnet, 319.
Barton, Robert, 164.
Bartramia stricta, 223.
Bartsia viscosa, 282.
Battersea, 240, 341.
Bauhin, J., 363.
Bayley, John, 164.
Beal, Northumberland, 197.
Beisly, Mrs., 165.
Beisly, Sidney, 165.
Beckenham, 162, 282.
Beck Farm, 67.
Belford, 79.
Belleisle, 46.
Bembridge, 94.
Ben Lawers, 303, 304.
Bentley, William, 163.
Berberis vulgaris, 254, 368.
Berry, James, 164.
Berwick, 198.
Beta maritima, 242.
Bewdley, 75, 93, 325.
Bexley, 372.
Bindweed, 96.
Blackburn, 164.
Blackheath, 240.
Blackpool, 279, 281.
Blackwall, 9.
Bleachley, Thomas, 164.
Bleackley, Henry, 164.
Blechnum Spicant, var. ramosum, 159, 192.
Bliss, Dr., 131.
Bootle, 65.
Borago officinalis, 38, 201, 361.
Boswell, Henry, 162.
Botanical guide of Llanberis, death of, 223.
Botanical Letters from Argyleshire, 271, 331.
Botanical Notes for Malvern, 275.
Botanical Professorship, Cambridge, 237.
Botanical Ramble on Ben Ledi, 378.
Botanical Society of Canada, 348.
Botanists, local list of, 161.
Botanizing at the beginning of April, three days', 165.
Botanizing, near Methven, Perthshire, results of a day's, 330.
Botany of Ben Lawers, 303.
Botany of Hulne Park, Northumberland, 193.
Botany of Humphrey Head, 257.
Botany of Kent, additional remarks on, 374.
Botany of Mauritius, 319.
Botany of Spain, 225, 296, 327, 356.
Botany of the Borders of Suffolk and Norfolk, 321.
Botany of the Chilterns, remarks on, 118.
Botany of the Doward Hills, 101.
Botany of the Meuse, 353.
Botany of the Red River, 214.
Botrychium Lunaria, 96, 99, 146, 177.
Botrytis effusa, 268.
Bowdon, 164.
Boxley, 362.
Bradford, 164.
Brassica campestris, 43.
Brassica oleracea, 43, 142, 241, 292, 335, 375.
Brighton, 223.
Brierly, George, 163.
British Botany, Chapters on, 129.
British Ferns, new varieties of, 69.
British Lepigona, 81.
British Orchids, fertilization of, by insect agency, 222.
British Plants, a comparative list of, 310.
Brixton, 251.
Briza media, 100, 270.
Brompton, in Kent, confounded with Brompton in Middlesex, 51.
Bromus commutatus, 202.
Broughton, 65.
Bryum pallescens, 263.
Buddle's Herbarium, results of a few hours' research in, 176.
Bulleyn, Dr., 129.
Bunium flexuosum, 41, 254.
Bupleurum fruticosum, 361.
Bupleurum rotundifolium, 118, 281, 295, 372.
Burnham Beeches, 366, 367, 368.
Butomus umbellatus, 282, 367.
Buxton, Richard, 163.
Buxus sempervirens, 118.
Bydel, John, 132.

Cactus Opuntia, 229.
Cakile maritima, 70, 281, 291, 336, 380.
Calamintha Clinopodium, 322.
Calamintha officinalis, 181.
Cadwell, Joseph, 164.
Callitriche platycarpa, 200.
Calluna vulgaris, 324.
Cambridge, 130.

Campanula hybrida, 119.
Campanula latifolia, 169, 259, 270, 271, 295, 331.
Campanula rapunculoides, 158, 330.
Campanula Trachelium, 39, 367.
Campbeltown, 255, 272, 273, 331.
Canterbury, 110, 113, 179, 335, 374.
Cardamine amara, 281.
Cardamine sylvatica, 196.
Carduus acaulis, 39, 200.
Carduus benedictus, 146.
Carduus heterophyllus, 81, 197, 337.
Carduus nutans, 39, 320, 323.
Carex acuta, 106.
Carex arenaria, 67.
Carex clandestina, 105, 189.
Carex curta, 296, 331.
Carex digitata, 105, 189, 237.
Carex dioica, 296.
Carex flava, 201.
Carex glauca, 100.
Carex lævigata, 213.
Carex montana, 101, 105.
Carex pallescens, 106, 158, 270, 271.
Carex panicea, 384.
Carex paniculata, 207, 295.
Carex pendula, 105.
Carex præcox, 105, 189.
Carex saxatilis, 305.
Carex sylvatica, 270, 271, 331.
Carex tenella, 346.
Carex vulgaris, 189.
Carlina vulgaris, 39, 243.
Catalonia, 228, 229.
Caucalis latifolia, 281.
Centaurea Calcitrapa, 71, 183.
Centranthus ruber, 40, 180, 238, 359.
Cephalanthera grandiflora, 35, 105.
Cerastium alpinum, 304.
Cerastium arvense, 44, 293.
Chadderton, 164.
Chadwick, George, 163.
Chambers, William, 164.
Charetton, William, 162.
Cheiranthus Cheiri, 42, 146, 243.
Chelsea, 365.
Chenopodium Botrys, 146.
Chenopodium olidum, 370.
Chichester, 287.
Chiltern Hills, 118.
Chlora perfoliata, 241.
Chobham, 11.
Chrysanthemum segetum, 235.
Chrysosplenium oppositifolium, 195, 290.
Churchill, G. E., 163.
Cinclidium stygium, 352.
Cladium Mariscus, 81, 324.
Cladosporium herbarum, 267.
Clapham Common, 94, 366.
Claytonia alsinoides, 288.
Clegg, Jonas, 164.
Clematis Flammula, 297.
Clematis Vitalba, 101, 199.
Clough, E., 165.
Cochlearia danica, 254, 292.
Cochlearia officinalis, 67.
Collinson's Notes, 305.
Cologne, 135.
Comarum palustre, 324.
Combe Wood, 33, 39.
Conium maculatum, 184, 281.
Contributors, Notice to, 32.
Convallaria maialis, 34.
Convallaria Polygonatum, 81, 197.
Convolvulus Soldanella, 39, 67, 143, 210.
Cooke, James, 164.
Coriandrum sativum, 144, 158.
Cornus florida, 345.
Cornus sanguinea, 104.
Coronilla Emerus, 182.
Coronopus didyma, 251.
Correspondence, extracts from, 128.
Corsica, Isle of, 45.
Corydalis solida, 81, 146, 194, 195.
Corwen, 128.
Cosson and Germain, 364.
Cotyledon Umbilicus, 104, 143, 146, 254.
Coward, Thos., 163.
Cowes, 247.
Cowslip, 146.
Cowslips of Jerusalem, or, Jerusalem Cowslips, 95.
Crambe maritima, 43, 136, 142, 241.
Crepis biennis, 108, 109, 206, 351.
Crepis fœtida, 40.
Crepis paludosa, 261, 295.
Crepis setosa, 100.
Crepis succisæfolia, 81, 197.
Crepis taraxacifolia, 40, 207.
Crithmum maritimum, 41, 142, 242, 336.
Cumbrian Botany, 65, 221.
Cuscuta Epithymum, 367.
Cuscuta, how to destroy, 286.
Cuscuta Trifolii, 113.
Cuxton, 365.
Cyclamen hederæfolium, 144, 343, 344.
Cynoglossum sylvaticum, 11, 320.
Cynosurus echinatus, 158.
Cyperus longus, 146, 338, 377.
Cypress, 63.
Cystopteris alpina, 81.
Cystopteris fragilis, 270, 271.
Cystopteris montana, 81, 304.
Cystopteris virens, 283.
Daphne Laureola, 81, 105, 167, 188, 325.
Daphne Mezereon, 124, 165.
Darlaston, Staffordshire, 69.
Dartford, 173, 372.

Dartmoor, elevation of, 255.
Davies, William, 163.
Deal, 42, 110, 185, 208, 209, 213, 238.
De Candolle, 364.
Delphinium Consolida, 324.
Dianthus deltoides, 80, 158.
Dickson, Andrew, 162.
Digitalis purpurea, 254.
Dinton, Chiltern Hills, 119.
Dioscorides, 129.
Diotis maritima, 295.
Diplotaxis erucoides, 230.
Diplotaxis muralis, 382.
Dipsacus pilosus, 73, 181, 323, 354, 374.
Dodoens, 363.
Doronicum Pardalianches, 325.
Dover, 39, 42, 110, 245, 336, 337, 355.
Draba majuscula, 80.
Draba rupestris, 303.
Draba verna, 7, 196.
Drosera anglica, 282.
Drosera intermedia, 282.
Drosera longifolia, 346.
Drosera rotundifolia, 68, 199.
Dugdale, John, 163.
Dunkeld, 11, 158.
Dungeness, 339.
Dunning, Joseph, 164.

Eastwood, Charles, 163.
Eccles, 165.
Echium vulgare, 323.
Elatine hexandra, 153.
Eleocharis and ololeucos, 96.
Elevation of Dartmoor, 255.
Elm, 215.
Eltham, 117.
Ely, 223.
Empetrum nigrum, 196.
Enfield, 117.
Epilobium angustifolium, 295.
Epilobium latifolium, specimens of, wanted, 274.
Epilobium roseum, 354.
Epilobium virgatum, 200.
Epipactis latifolia, 195.
Epipactis palustris, 157, 296, 324, 372.
Epipactis purpurata, in Middlesex, 380.
Epipactis rubra, 344.
Erica arborea, 229.
Erigeron alpinus, 303.
Erigeron acris, 105, 208, 243, 324, 367.
Erith, 207.
Ervum tetraspermum, 71.
Eryngium maritimum, 66, 147, 156, 209, 281.
Erysimum cheiranthoides, 281.
Erythræa Centaurium, 241.
Erythræa pulchella, 208.
Eton, 367, 368.

Euonymus europæus, 44, 99, 103, 323.
Eupatorium cannabinum, 40, 67.
Euphorbia amygdaloides, 35, 147.
Euphorbia Characias, 232, 235.
Euphorbia Esula, 81, 194.
Euphorbia exigua, 158.
Euphorbia Paralias, 147, 157, 168.
Euphorbia pilosa, 300.
Euphorbia platyphylla, 201.
Euphorbia portlandica, 221, 251.
Evans, Joseph, 164.

Fagus Castanea, 147.
Farquharson, Robert, 162.
Faversham, 108, 291.
Fedia dentata, 367.
Fedia olitoria, 254.
Fenton, Joseph, 163.
Ferns, fertilization of, 106.
Festuca bromoides, 99.
Festuca ovina, 271.
Fielden, John, 163.
Fife, 11.
Filago germanica, 100, 200.
Filago minima, 200.
Findlay, Bruce, 164.
Flora of Harrow, addenda to, 198.
Folkestone, 39, 245, 336, 337, 339.
Forge Valley, 10.
Foster, R. W., 163.
Fowler, George, 163.
Frankenia lævis, 45, 292, 336.
Fries, 364.
Fritillaria and Crowflowers, 205.
Fritillaria Meleagris, 119, 201, 296.
Fritton, Norfolk, 291, 295, 296.
Fuchsius, 363.
Fumaria capreolata, 73, 344.
Fumaria parviflora, 371.
Fumaria spicata, 329.
Fungi, Chapters on, 265.

Gagea lutea, 81, 147, 189, 196.
Galanthus nivalis, 128, 189.
Galeobdolon luteum, 118, 274.
Galeopsis versicolor, 201.
Galeopsis villosa, 302.
Galium Mollugo, 118.
Galium palustre, 200.
Galium saxatile, 100.
Gastridium lendigerum, 296, 299.
Genista anglica, 199.
Genista Scorpius, 233.
Genista tinctoria, 42, 68.
Gentiana Amarella, 241.
Gentiana campestris, 66, 331.
Gentiana germanica, 355.
Gentiana nivalis, 303.
Gentiana Pneumonanthe, 11, 282, 296.
Geranium columbinum, 67.

Geranium lucidum, 99, 259, 290.
Geranium phæum, 280.
Geranium pyrenaicum, 182, 293, 369.
Geranium sanguineum, 99, 261.
Geranium sylvaticum, 270, 271.
Gerarde, 363.
Gesner, 129.
Geum intermedium, 270, 271.
Geum rivale, 294.
Geum urbanum, 147, 270, 271.
Gibson, Dr. Thomas, 129.
Glaux maritima, 208, 260, 381.
Glossop, 165.
Glover, Thomas, 163.
Gnaphalium dioicum, 80.
Golden-blotched Weeping Ash, 192.
Goodyera repens, 158.
Googe, Barnaby, 63.
Graham, Edmund, 164.
Gravesend, 110.
Greenhithe, 110, 174, 359.
Grindon, Leo H., 163.
Groombridge, Sussex, 61.
Guthrie, W., 163.
Gymnadenia albida, 98.
Gymnadenia Conopsea, 34, 331.

Habenaria bifolia, 322, 331, 344.
Habenaria viridis, 98, 296, 322.
Hairbell v. Harebell, 191.
Halifax, 163.
Halstead, John, 162.
Ham, 206.
Ham Ponds, 185.
Hampson, Richard, 164.
Hampstead, 174, 318.
Harbledown, 180.
Hardy, Firth, 165.
Harrison, 129.
Harris, Rev., Stamford, M.A., 163.
Harrow, 198.
Haslingden, 164.
Hayes Common, 384.
Hedley, Jonathan, 162.
Helianthemum canum, 257.
Helianthemum vulgare, 99.
Helleborus fœtidus, 101, 189, 360.
Helleborus viridis, 81, 101, 139, 189, 195, 286.
Helminthia echioides, 71.
Hendon, 319.
Heptonstall, 162.
Herbaria, sales of, 350.
Hereford, 104.
Herminium Monorchis, 173.
Hesperis matronalis, 81, 195, 270, 271.
Heyes, Abraham, 163.
Hieracium aurantiacum, 81.
Hieracium murorum, 260, 282.
Hieracium pallidum, 80, 260.
Hieracium vulgatum, 99, 200.
Highgate, 174, 251.
Hilton, George, 164.
Hippocrepis comosa, 42, 103.
Hippophaë rhamnoides, 35, 213, 335.
Hippuris vulgaris, 113, 259.
Hoffmann, 363.
Holborn Hill, 65.
Holden, Thomas, 164.
Holland, Robert, 163.
Holly, 96.
Holmes, John, 162.
Holmfirth, 165.
Holt, Edmund, 163.
Holt, John, 164.
Honkenya peploides, 210.
Hooker, Sir W. J., 364.
Horsfall, James, 163.
Horsefield, James, 164.
Horsfield, William, 165.
Hotbarrow, 68.
Hottonia palustris, 207, 280, 324.
Howarth, John, 162.
Huddersfield, 163.
Hudson, Mr., 362.
Hulme, George, 164.
Humberstove, Daniel, 162.
Humphrey Head, 257.
Humphrey Head, visit to, 259.
Humulus Lupulus, 147, 322.
Hunt, George Edward, 163.
Hunter, Henry, 162.
Hutchinsia petræa, 103, 291.
Hyacinthus anglicus, 191.
Hydrocharis Morsus-ranæ, 30, 182, 190, 282, 322, 324, 367.
Hymenophyllum tunbridgense, 81, 274.
Hyoscyamus niger, 73, 183, 281, 361.
Hypericum Androsæmum, 68.
Hypericum Elodes, 52, 153.
Hypericum Elodes, vertical range of, 64.
Hypericum hirsutum, note on, 319.
Hypericum humifusum, 98.
Hypericum pulchrum, 98.
Hypnum dispalatum, 223.
Hypnum fluitans, 264.
Hypnum palustre, 264.
Hypnum squarrosum, 264.
Hypochœris maculata, 260.
Hythe, 110, 337, 339.

Iberis amara, 118, 292, 295, 344.
Isley, East, in Berks, 11.
Impatiens Noli-me-tangere, 81, 261, 262.
Inchbald, Poter, 163.
Ingleborough, 221.
Ingle, T. W. B., 162.
Intruder, an, 95.
Inula Conyza, 169.

Inula Helenium, 250.
Iris fœtidissma, 35, 335.
Iris Pseudacorus, 68, 271, 300.
Isatis tinctoria, 9, 145, 147, 151, 384.
Isleworth, 138.
Isoetes hystrix, 45, 96.

Jolliffe, William, 162.
Juncus acutus, 208.
Juncus biglumis, 305.
Juncus castaneus, 304.
Juncus cœnosus, 109.
Juncus obtusiflorus, 335.
Juncus squarrosus, 367.
Juncus supinus, 201, 260.
Juniperus communis, 196, 257.

Kentish botany, 177, 206, 238, 334, 371.
Kent, William, 164.
Kersney Abbey, 45.
Keston Common, 61.
Keston Heath plants, 384.
Kew, 153, 172, 251, 307.
King, Samuel, 163.
Kingsdown, 241.
Kingston (Canada), Botanical Society of, 113.
Kœleria cristata, 99.
Königa maritima, 230.

Lactuca (Prenanthes, Sm.) muralis, 40, 260, 367.
Lactuca virosa, 335.
Lambeth, 94.
Lamium purpureum, 188.
Lastrea Oreopteris, 196.
Lastrea remota, 10.
Lastrea spinulosa, 295.
Lathyrus macrorrhizus, 42.
Lathyrus Ochrus, 231.
Lathyrus maritimus, 42, 240, 251.
Lathyrus sylvestris, 11, 71.
Lathyrus tuberosus, 8, 128, 186.
Lavatera arborea, 240.
Laurel, 63.
Leeds, Edward, 163.
Lees, Robert, 164.
Leigh, John, M.R.C.S., 164.
Lepidium Draba, 43, 230, 292, 329, 330, 360.
Lepidium latifolium, 140, 291.
Lepidium ruderale, 109.
Lepidium Smithii, 254, 281, 292.
Lepigonum marinum, 44.
Lepigonum neglectum, 82.
Leucojum æstivum, 9, 148.
Ligustrum vulgare, 104.
Libbard's-bane, 325.
Lilium Martagon, 362.
Linaria purpurea, 252.
Lindley, Dr., 364.
Linum angustifolium, 44, 238.
Linum catharticum, 100, 199, 333, 344.
Listera cordata, 81.
Listera ovata, 271, 287.
Lithospermum maritimum, 222.
Lithospermum officinale, 39, 196.
Liverpool, 84, 127.
Liverpool Naturalists Field Club, 126.
Llanberis, 307, 308.
Llanderfel, 61, 96.
Lobelia Dortmanna, 261, 379.
London, 84, 165.
Lonicera Periclymenum, 41, 258.
Lord, George, 163.
Lotus major, 71.
Lowestoft, 289, 291, 292, 294.
Lund, James, 163.
Luzula campestris, 271, 189.
Luzula Forsteri, 105, 189, 201.
Lycopsis arvensis, 38.
Lydd, 246.
Lydden Spout, 43, 245, 246, 334, 336, 342, 375, 377.
Lynn, 321.
Lysimachia vulgaris, 159.
Lytham, 155, 279, 281, 282.

Macpherson, John, 162.
Madrid, 327.
Maianthemum bifolium, 10, 236, 318.
Malaxis paludosa, 171, 323.
Manchester, 83, 163.
Margate, 242.
Marrubium vulgare, 238.
Marshall, W., Esq., 165.
Medicago falcata, 294.
Medicago maculata, 42, 254.
Medicago minima, 208.
Melica uniflora, 33.
Melampyrum cristatum, 322.
Melilotus vulgaris, 294.
Mentha hirsuta, 148.
Mentha Pulegium, 142.
Mentha rotundifolia, 298, 354.
Mentha sylvestris, 331.
Mentha viridis, 201.
Menyanthes trifoliata, 208, 282, 324 346.
Merrett, 129.
Meum athamanticum, 140.
Micholls, Horatio, 164.
Microscopical observers, notice to, 383.
Middleton, 164.
Mill Hill, 172, 173, 174, 175.
Mimulus luteus, 271.
Mœnchia erecta, 80, 81, 98, 292.
Mollineux, Rev. Mr., 163.
Moncrieffe, 56.

Monotropa Hypopitys, 105.
Monserrat, 356.
Montia fontana, 98, 200.
Morpeth, Northumberland, 130.
Morris, Walter, 163.
Mosses, addenda to the list of Oxfordshire, 352.
Mosses additions to the list of Oxford, 262.
Myosotis alpestris, 304.
Myosotis collina, 39, 99.
Myosotis versicolor, 98.
Myosurus minimus, 319.
Myrica Gale, 142.
Myriophyllum verticillatum, 324.
Myrrhis odorata, 140, 261.
Myrtle, 63.
Mytholm, 163.

Narcissus biflorus, 189, 360, 371.
Narcissus poeticus, 360.
Nardus stricta, 202.
Naturalized aliens, 382.
Neottia Nidus-avis, 105, 271, 322.
Neottia spiralis, 174.
Nepeta Cataria, 73, 242.
New Brighton, 281.
Nicholson, J. Holme, 164.
Norfolk, 165.
Norfolk, on the fen and ditch plants of, 152.
Northfleet, 174, 207.
Norton, 290.
Norwich, 290, 292, 296.
Notes on Norfolk plants, 289.
Notice about Luzula pilosa, etc., 288.
Nowell, John, 162.
Nymphæa alba, 148, 152.

Oak, 215.
Œnanthe Lachenalii, 71, 208, 324.
Œnanthe Lachenalii, dwarf form of, 254.
Œnanthe peucedanifolia, 281.
Œnothera odorata, 183.
Ollerenshaw, J., 165.
Ononis arvensis, 322.
Ononis spinosa, 183.
Onopordon Acanthium, 75, 148.
Ophioglossum lusitanicum, 81.
Ophioglossum vulgatum, 99, 106.
Ophrys apifera, 34, 105, 118, 173, 322, 354.
Ophrys aranifera, 174, 34.
Ophrys muscifera, 34, 105, 324.
Ophrys Nidus-avis, 118.
Ophrys scolopax, 307.
Orchids, British, 171.
Orchis bifolia, 173.
Orchis chlorantha, 174.
Orchis conopsea, 173, 324.
Orchis fusca, 34, 172.
Orchis hircina, 173, 344.
Orchis latifolia, 157, 172, 254.
Orchis maculata, 98, 260.
Orchis mascula, 98, 254, 271.
Orchis militaris, 172.
Orchis Morio, 80.
Orchis papilionacea, 306.
Orchis provincialis, 306.
Orchis ustulata, 34, 173.
Orchis viridis, 174.
Ornithogalum pyrenaicum, 11.
Orobanche caryophyllacea, 38, 336.
Orobanche major, 105, 148, 254.
Orobanche minor, 95, 242, 323.
Orobus tenuifolius, 199.
Orobus tuberosus, 80.
Orthotrichum anomalum, supplemental notes on, 26.
Osmunda regalis, 274, 367.
Oxalis Acetosella, 199, 271, 333, 346.
Oxalis corniculata, 231, 361.
Oxalis stricta, 347.
Oxford, 162, 263.

Palm, 224.
Papaver Argemone, 148, 368.
Papaver dubium, 125, 159, 254.
Papaver hybridum, 148, 329, 373.
Papaver somniferum, 43.
Paper, a new material for the manufacture of, 61.
Paper, more materials for the manufacture of, 287.
Parietaria officinalis, 35, 196.
Paris quadrifolia, 34, 139, 172, 195, 260, 322.
Parnassia palustris, 156, 323.
Parson's Green, 240, 251.
Patefield, William, 164.
Patman, William, 162.
Paulus Egineta, 129.
Pear-tree at Holme Lacy, near Hereford, account of a remarkable, 75.
Pear-tree, a large, 64.
Peckham, 173.
Pedicularis palustris, 370.
Pegwell Bay, 208.
Percival, James, 165.
Perth, 127, 162, 269, 320.
Petasites vulgaris, 192.
Petroselinum segetum, 41.
Peucedanum officinale, 108, 109, 143.
Phascum crispum, 263.
Phleum alpinum, 303.
Phyteuma orbiculare, 124.
Picris hieracioides, 71.
Pimpinella magna, 281.
Pimpinella Saxifraga, 41, 99, 260, 271.

Pinguicula vulgaris, 221, 324.
Pinner, 198.
Plantago maritima, 67.
Plants, dates of flowering of, in the vicinity of Plymouth, 253.
Plants, dates of flowering of, in the vicinity of Ross, 188.
Plants, herbarium of North German, 318.
Plants, Kentish, additional, 70.
Plants, list of, found in the neighbourhood of Perth, 158.
Plants, list of, found near Slough, Stoke, and Burnham Beeches, 366.
Plants, list of, found within five miles of Lytham, on the bank of the Ribble, 380.
Plants, indigenous, 63.
Plants near Turville, Bucks, 344.
Plants of Dover, 33.
Plants of Faversham, 107.
Plants of Invermay, 269.
Plants of Plymouth, 368.
Plants of Ratcheugh Crag, Northumberland, 97.
Plants, rare, near Spindlestone, Northumberland, 79.
Pliny, 129.
Plumstead marshes, 8, 365.
Plymouth, 253.
Poa bulbosa, 296.
Poa nemoralis, 202.
Polygala vulgaris, 44, 261.
Polypodium Phegopteris, 196.
Polypodium vulgare, 149.
Polypogon monspeliensis, 208.
Polystichum aculeatum, 196.
Polystichum angulare, 68.
Polystichum Lonchitis, 304.
Populus nigra, 189.
Potamogeton crispus, 355, 356.
Potamogeton densus, 322, 355.
Potamogeton oblongus, 154, 201, 331, 335.
Potentilla verna, 80, 81.
Potentilla Tormentilla, 149.
Poterium muricatum, 104, 220.
Poterium Sanguisorba, 99, 344.
Prenanthes muralis, 118. (Lactuca muralis.)
Preston, 164, 258, 279, 281, 282, 318.
Prestwick, 165.
Primula farinosa, 221.
Primula vulgaris, 254.
Prunus communis, 271.
Prunus domestica, 199.
Prunus insititia, 143.
Prunus spinosa, 98, 254.
Psamma arenaria, 208.
Pseudathyrium alpestre, 305.
Pteris aquilina, 94.
Pulmonaria angustifolia, 95, 167.
Pulmonaria officinalis, 195, 322.
Pulteney, Dr., 129, 130, 132.
Pyrethrum maritimum, 183, 242.
Pyrola media, 344.
Pyrola minor, 10, 196, 271.
Pyrola rotundifolia, 81, 282, 287, 295.
Pyrus Aria, 104.
Pyrus Aucuparia, 254.
Pyrus communis, 141, 149.
Pyrus Malus, 149.
Pyrus torminalis, 104, 250.

Radiola Millegrana, 66, 73.
Ranmer Common, Surrey, 102.
Ranunculus bulbosus, 230, 254.
Ranunculus circinatus, 45.
Ranunculus fluitans, 106.
Ranunculus gramineus, 336, 359, 360.
Ranunculus heterophyllus, 7.
Ranunculus hirsutus, 368.
Ranunculus Lingua, 81, 153, 198, 212, 359.
Ranunculus parviflorus, 368.
Ranworth, 152, 290, 292, 293, 294, 295, 296.
Ratcheugh Crag, 97.
Ray, Mr. John, 129.
Reigate, 151.
Remarks on the botany of Burnham Beeches, 168.
Reseda Luteola, 323.
Retrospective notice about *Arenaria balearica*, 127.
Reviews, 87, 90, 121, 125, 155, 220, 246, 249, 283, 345.
Rhinanthus Crista-galli, 37, 254, 271, 368.
Ribes Grossularia, 254.
Richardson, William, 126.
Richboro', 182.
Richmond, 138.
Rochdale, 163.
Rœmeria hybrida, 124, 255, 291, 327, 329, 330.
Romney Marsh, 339, 343.
Rogers, Thomas, 164.
Rosa rubiginosa, 321, 323.
Rosa spinosissima, 99.
Rosa tomentosa, 200.
Ross, 104, 253, 254, 255.
Rouen, 364.
Ruabon, 128.
Rubia peregrina, 41, 149.
Rubus laciniatus, discovery of, near Plymouth, 381.
Rubus nitidus, 200.
Rubus pygmæus, 200.
Rubus saxatilis, 261, 271.

Rumex maritimus, 119.
Rumex pratensis, 296.
Ruta angustifolia, 298.
Ryde, 162, 252.

Sagina apetala, 199.
Sagina nodosa, 66, 322.
Sagina subulata, 81.
Sagittaria sagittifolia, 153, 296, 368.
Salix alba, 201.
Salix cinerea, 224.
Salsola Kali, 81, 149, 210, 381.
Salvia verbenaca, 37, 323.
Samolus Valerandi, 66, 157, 208, 260, 324, 377.
Sandown Castle, 213.
Sandwich, 180, 208, 209, 210, 212, 335.
Sanicula europæa, 41, 118.
Sarothamnus scoparius, 42, 271, 323.
Sauce, 287.
Saxifraga aizoides, 331, 379.
Saxifraga granulata, 79, 150, 271.
Saxifraga oppositifolia, 274.
Saxifraga tridactylites, 98.
Scandix Pecten, 254.
Scarborough, 10, 236, 318.
Schœnus nigricans, 11, 324.
Schofield, James, 163.
Schrader, 363.
Scilla bifolia, 176.
Scilla nutans, 139.
Scilla verna, 81.
Scirpus maritimus, 380.
Scirpus sylvaticus, 319.
Scleranthus annuus, 200.
Sclerochloa maritima, 33.
Sclerochloa rigida, 33.
Scolopendrium vulgare, 377.
Scott, W. P., 164.
Scrophularia peregrina, 232.
Scrophularia vernalis, 49, 256, 351, 382.
Sea-grass paper, 381.
Seabrooke, 338, 339.
Sedum dasyphyllum, 110, 112.
Sedum reflexum, 182, 331.
Sedum Telephium, 68, 258, 331.
Sedum villosum, 80, 81, 331.
Seeds, vitality of, 72.
Senecio erucifolius, 369.
Senecio paludosus, 153, 295.
Senecio saracenicus, 282.
Senecio viscosus, 235, 282, 371, 373.
Sepedonium chrysospermum, 268.
Serrafalcus arvensis, 384.
Serratula tinctoria, 105, 200.
Sesleria cærulea, 81, 98.
Setaria viridis, 296.
Seth, Simeon, 129.
Settle, 157, 197, 261.
Shakspeare's Cliff, 40.
Shakspeare plants, 192.
Shamrock, 94, 349.
Shaw, Mr. John, 165.
Sibthorpia europæa, 370.
Sidebotham, Joseph, 163.
Silene anglica, 369.
Silene conica, 210.
Silene inflata, 100.
Silene maritima, 157, 258, 260.
Silene nutans, 242, 243.
Silene Otites, 292.
Sim, John, 162.
Simpson, Adam, 164.
Simons, Rev. E., 165.
Sinclair, death of Dr. Andrew, 284.
Sion House, 138.
Sison Amomum, 105, 281, 322.
Sisymbrium Irio, 81, 150, 198, 327, 360.
Sisymbrium Sophia, 157, 183, 281, 327.
Sisymbrium thalianum, 189, 254.
Sium angustifolium, 324.
Sium latifolium, 150.
Sium nodiflorum, 258.
Smith, Sir J. E., 363.
Smyrnium Olusatrum, 41, 143, 183, 281, 378.
Snowdon, 307, 309.
Solidago Virgaurea, 200.
Sonchus palustris, 8, 153, 295, 365.
Sorbus Aucuparia, 140.
Sowden, Rev. Sutcliffe, 163.
Sparganium natans, 207.
Species, origin of, 64.
Specimens, exchange of, 383.
Specularia hybrida, 370.
Spencer, William, 164.
Spergula subulata, 80.
Spikenard, 159.
Spiræa Filipendula, 79.
Spiranthes autumnalis, 34.
Stainland, 120. (See Todmorden.)
Staleybridge, 164.
St. Andrew's, Guernsey, 96.
Stansfield, Tom, 162.
Statice bahusiensis, 66.
Statice binervosa, 242.
Statice caspia, 125.
Statice Limonium, 81, 109.
Statice spathulata, 36.
St. Margaret's, 241, 242.
Stellaria nemorum, 292.
Stenton Rocks, 158.
Stilbum tomentosum, 266.
Stockport, 164.
Stoke, 366, 367, 368.
Stoke Common, 367.
Stratiotes aloides, 154, 252, 282.

Subularia aquatica, 379.
Sutcliffe, Fairbank, 163.
Sutcliffe, Rev. Thomas, 162.
Sutcliffe, William, 162.
Sydenham, 165, 282.

Tamus communis, 105, 119, 322.
Tarragona, 229, 296, 297, 301.
Taxus baccata, 188.
Teesdalia nudicaulis, 291.
Tenterden, 211.
Tetraphis pellucida, 263.
Teucrium Scordium, 141, 150.
Teucrium Scorodonia, 99.
Thalictrum flexuosum, 99.
Thalictrum minus, 289.
Theophrastus, 129.
Thetford, 321.
Things not generally known, 287.
Thirsk, 290.
Thompson, John, 162.
Thompson, Wm., 163.
Thornily, Christopher, 164.
Thymus Serpyllum, 270, 271.
Tillæa muscosa, 254, 382.
Tillæa muscosa and Scrophularia vernalis, 256.
Tilia europæa, 150.
Tilia grandiflora, 103.
Tilia parviflora, 103.
Tinker, Jethro, 164.
Todmorden, 83, 162.
Todmorden Botanical Society, 83, 119, 216.
Torrey's, Dr., herbarium, 351.
Treviranus, L. C., 190.
Trientalis europæa, 196, 236.
Trifolium arvense, 80.
Trifolium incarnatum, 159.
Trifolium maritimum, 294.
Trifolium medium, 199.
Trifolium ornithopodioides, 369.
Trifolium stellatum, 233.
Trifolium striatum, 71, 335.
Trifolium subterraneum, 294, 338.
Trifolium suffocatum, 156, 238, 294.
Triglochin maritimum, 67, 260, 381.
Triglochin palustre, 109, 208, 331.
Tring, Herts, 118.
Trollius europæus, 290.
Tubercularia vulgaris, 266.
Tulipa sylvestris, 31.
Turnham Green, 110.
Turner, John, 164.
Turner, Dr. William, 129, 130, 131, 134, 135, 136, 137, 138, 139, 144, 145.
Turner, William, 164.

Ulex europæus, 189.
Ulmus campestris, 188.
Upton, 252.
Urtica romana, 150.
Utile et dulce, 255.
Utricularia intermedia, 170.
Utricularia vulgaris, 280, 324.

Valencia, 296, 300, 301.
Valeriana Calcitrapa, 116.
Valeriana rubra, 196.
Valerianella Auricula, 384.
Valerianella Olitoria, 384.
Venus's Looking-glass, 95.
Verbascum Blattaria, 75.
Verbascum floccosum, 124.
Verbascum Lychnitis, 11, 75, 110, 296, 354, 363.
Verbascum nigrum, 159, 169, 323.
Verbascum phlomoides, 364, 366.
Verbascum thapsiforme, 352, 362, 363. 364, 365, 366.
Verbascum Thapsus, 73, 75, 322.
Verbascum virgatum, 75, 282.
Veronica Buxbaumii, 204.
Veronica hybrida, 260.
Veronica montana, 254.
Veronica peregrina, 11, 159, 200.
Veronica spicata, 124.
Vicia bithynica, 42.
Vicia gracilis, 124, 199.
Vicia lathyroides, 79, 199.
Vicia sepium, 254.
Villarsia nymphæoides, 153,252, 296.
Vinca major, 196.
Viola canina, 125, 359.
Viola hirta, 98, 189, 254.
Viola odorata, 195, 292.
Viola sylvatica, 98.
Viola tricolor, var. arenicola, 1, 27.
Viscum album, 188.

Waddington, John, 163.
Wahlenbergia hederacea, 61, 370.
Wakefield, 93, 162.
Walker, J., 163.
Walmer, 39, 239, 241.
Walmer Castle, 33.
Walthamstow, 116.
Wandsworth, 151, 239, 251, 292, 295, 341.
Wandsworth Common, 9.
Weissia acuta, 380.
Westwood, 34.
White, F. B., 162, 163.
Whiteleaf Cross, 118.
Whitstable, 109.
Willdenow, 363, 364.
Williamson, Isaac, 164.
Williams, William, the Snowdon guide, a brief notice of, 307.
Wimbledon, 289.

Withering, Dr., 363.
Witherington, John, 164.
Wood End, 198.
Wood, John, Bland, M.D., 163.
Woodsia alpina, 303.
Woodsia hyperborea, 81.
Worcestershire Naturalists' Club, 219, 319.
Workington, 222.
Worsley, Edward, 164.
Wrexham, 128.

Yarmouth, 291, 292, 294, 295, 296, 321.
Yates, R. S., 164.
Yew, 151.
York, 128.

Zaragoza, 296.
Zostera marina, 381.

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